COLLECTION OF EMPIRICAL KNOWLEDGE ON THE TREATMENT OF LIVESTOCK WITH MEDICINAL PLANTS AND NATURAL SUBSTANCES IN BAVARIA

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Meiner Mutter, meinem Bruder,
Dr. Daniela Steinert &
Dr. Claudia Dechant

(Die meinen Körper am Leben hielten,
als ich es selbst nicht konnte.)

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ABBREVIATIONS

AD	Anno Domini
approx.	Approximately
ATCvet codes	Anatomical Therapeutic Chemical classification system for veterinary medicinal products
BC	Before Christ
ConSEFS	Consensus Statement on Ethnopharmacological Field Studies
DART	Deutsche Antibiotika-Resistenzstrategie
DDDs	Defined daily doses
DP	Dialogue partner
e.g.	Exempli gratia
etc.	Et cetera
EVM	Ethnoveterinary medicine
GS	General strengthening
HBs-UR	Historical books use report
HR	Homemade remedy report
HSHR	Homemade single species herbal remedy report
MBW	Metabolic body weight
MSL	Meters above sea level
QA	Alimentary tract and metabolism
QD	Dermatologicals
QG	Genitourinary system and sex hormones
QG52	Products for teats and udder
QM	Musculoskeletal system
QN	Nervous system
QP	Antiparasitic products, insecticides and repellents
QR	Respiratory system
QS	Sensory organs
QV	Varia
TM	Traditional medicine
UR	Use report
VAS	Visual analogue scala
VETIDATA	Veterinärmedizinischer Informationsdienst für Arzneimittelanwendung, Toxikologie und Arzneimittelrecht
WHO	World Health Organisation

I. INTRODUCTION

The use of medicinal plants is as old as medicine itself.

The first evidence of medicinal plant usage was written approximately 5,000 years ago in Nagpur, India (PETROVSKA, 2012). This knowledge is appreciated on all continents of the world. Ayurveda, Traditional Chinese Medicine and many other systems are particularly well known. But also in Europe this knowledge of human and animal health has always been preserved and mostly passed on orally from generation to generation. However, it is not yet documented across the whole of Europe and is in acute danger of disappearing into oblivion.

To prevent this, ethnoveterinary research, defined as the "systematic investigation and application of folk veterinary knowledge, theory and practice" (MCCORKLE, 1986) is an appropriate approach for identifying traditionally used herbal remedies as promising medicinal plants and natural products for veterinary use. During the last decades, ethnoveterinary research has been conducted mainly in Asia, Africa and Central America (PIERONI et al., 2004).

But especially in Central and Northern Europe, the studies are sparse. Combined with a change in the agricultural structure of domestic farms and the growing use of chemical synthetic medicines, medicinal plants have received less and less attention in Western veterinary medicine since the middle of the last century (WYNN and FOUGÈRE, 2007a).

However, there is an increasing interest of veterinarians in herbal medicine worldwide nowadays, also in Europe (WALKENHORST et al., 2014; ABO-EL-SOOUD, 2018; KUPPER et al., 2018; SHIN and PARK, 2018) and it is furthermore encouraged by European guidelines for organic farming (EUROPEAN PARLIAMENT, 2018). This may be due to the growing number of organic farms all over the world (WILLER et al., 2021) and in particular due to the fact that antibiotic and antiparasitic resistance in human and animal pathogens are a growing global health threat and a cause of concern. Alert to these crises the May 2015 World Health Assembly adopted a global action plan on antimicrobial resistances, among others, to optimize the use of antimicrobial remedies in livestock (WHO, 2015). Due to this, further and new treatment strategies are needed.

In this context, the exploration of medicinal plants as a source of novel phytotherapeutics could reverse antimicrobial resistance when used in combination with conventional antibiotic drugs (IRITI et al., 2020). Furthermore, the use of plant products in first-line treatment of mild cases (AYRLE et al., 2016) or prevention (AYRLE et al., 2019) could possibly reduce the need for antibiotic treatments in livestock holdings. The new European regulation on veterinary medicinal products (EUROPEAN PARLIAMENT, 2019/6) offers hope that a simple authorization might be possible, for which more scientific data on the use of medicinal plants in farm animals are necessary.

Therefore, it is urgent to collect this knowledge also in those countries of Europe that have not been researched yet.

This study addresses this concern for Bavaria as the first region in the EU north of the Alps. The aim was the documentation of the indigenous veterinary knowledge in all seven districts of Bavaria, which is used by livestock holders from small sized to big farms, conventional and organic ones. Furthermore, the results were analyzed in terms of their content, applicability under current legislation and potential for the future development of European veterinary phytotherapy.

II. LITERATURE OVERVIEW

1. Background to medicinal plants in veterinary medicine

The use of natural products like mineral, plant and animal products that have therapeutic properties to cure diseases or to improve the health is as old as human civilization (DE PASQUALE, 1984). Certain plants that are described in historical documentations are still in use today. They are used in what is called traditional medicine nowadays, and in modern medicine in which herbal active ingredients are used as single compounds (PAULSEN, 2010). However, the Industrial Revolution and the development of organic chemistry resulted in a preference for chemical synthetic products instead of herbal preparations. Reasons for this were that pure compounds were readily available, and structural modifications to produce pharmaceuticals that were potentially efficacious and safer could be carried out more easily (RATES, 2001).

But why should a herb be used, when established, effective chemical synthetic drugs are available for so many medical conditions nowadays? “Most herbalist would answer this way: When conventional medicaments are both safe and effective, they should be used. Unfortunately, this isn’t the case for many serious chronic medical conditions. (…) Herbs represent an additional tool to the toolbox. For some, the fact that animals have been thought to treat themselves using herbs is reason enough to try them. For some herbalists, herbs also represent a different approach to the practice of medicine” (WYNN and FOUGÈRE, 2007b). Furthermore, the need to save antibiotics and antiparasitics and thinking sustainably about the next generations leads us to look for a wide spectrum of therapies. Medicinal plants are one opportunity with a growing interest among veterinarians. Recent surveys in Austria, Germany and Switzerland suggested that approximately three quarters of the participating veterinarians in those countries use some products of herbal medicine, most often as adjunctive therapy or in chronic cases (HAHN et al., 2005).

The next sections give an overview about the literature that describes the reasons why medicinal plants have been used for thousands of years and are still considered to have advantages over synthetically produced chemical products nowadays.

1.1. Natural self-care

Various self-preservation behaviors, including self-care, can be observed in plants and animals. These are shown in more detail in this chapter.

1.1.1. Plants –the multi-substance mixtures

Unlike humans and animals, plants can synthesize all the substances they need for their survival from the basic materials of sunlight, air, groundwater and nutrients from the soil. This complex mixture of produced substances is divided into primary constituents (chemical substances for the plant's own primary metabolism) and secondary ingredients (which serve no obvious purpose in their metabolism). Furthermore, plants can produce specific defense proteins during an infection, which is quite comparable to the human immune response. In addition, plants also have to protect themselves from predators (mechanical deterrents such as barbs, spines, thorns) (ENGEL, 2004b).

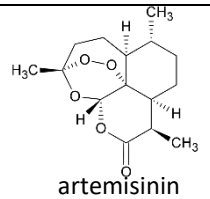
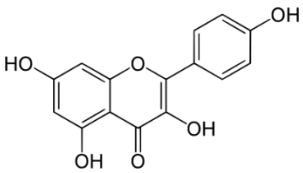
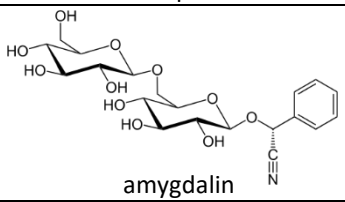
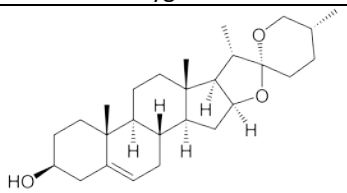
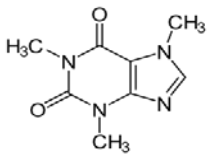
Plants protect themselves against their various enemies, such as herbivores, bacteria, fungi, viruses and competing plants, by means of secondary substances known as phytochemicals ("phyto" from Greek meaning "plant"). Phytochemicals are active ingredients that in many cases have more than one function (SWAIN, 1977; WINK, 2003, 2005). It is reasonable to suppose that these secondary substances are responsible for the therapeutic activity of medicinal plants. This has been proven for several cases by clinical studies (ANHEYER et al., 2017; DHAMA et al., 2018).

The mixtures of active substances contained in plants attack different cellular components that are also relevant in health disorders. Some active substances that selectively attack enzymes, receptors or ion pumps have been known for many years and are used medicinally today as pure substances (e.g. Atropin, Digitoxin, Strychnin) (WINK, 1993; VAN WYK and WINK, 2018). Yet these strongly active phytochemicals are contained in only nine per cent of the best-known, most often used medicinal plants (320 medicinal plant monographs, listed by the EUROPEAN COMMISSION (1994)). This contrasts with 91 per cent of medicinal plants whose active substances tend to fall into the class of non-selective or broad-spectrum active substances (WINK, 2005).

To gain a closer look on the plant chemistry, the phytochemicals can be categorized in various ways. Table 1 shows a classification for the clinically most relevant

phytochemicals on the basis of their large molecule structures and chemical composition (see also YARNELL (2007) and SHAKYA (2016)).

Table 1: Main groups of phytochemicals for clinical use

Phytochemicals	Chemical structure	Example	Examples of popular plants that are rich in these phytochemicals
Terpenes (Cartenoids, Steroids)	 artemisinin	artemisinin, α-carotene, β-carotene, lycopene, zeaxanthin	-*Juniperus communis* (juniper) -*Pinus spp.* (pine) -*Salvia officinalis* (sage) -*Thymus vulgaris* (thyme)
Polyphenoles (Flavonoids, Phenolics Tannins)	 kaempferol	caffeic acid, flavones, kaempferol quercetin, reservaratrol tannic acid, ellagic acid	-*Calendula officinalis* (calendula) -*Hypericum perforatum* (St. John's Wort) -*Quercus spp.* (oak) -*Vaccinum spp.* (blue-berry, cranberry)
Glykosides	 amygdalin	amygdalin, gentiopicrin, rographolide, polygalin,	-*Adonis vernalis* (pheasant's eye) -*Digitalis purpurea* (foxglove) -*Senna alexandrina* (senna)
Saponins	 diosgenin	diosgenin and hecogenin	-*Aesculus hippocastanum* (horse chestnut) -*Panax ginseng* (Asian ginseng) -*Yucca spp*. (yucca)
Alkaloids	 caffeine	berberin, caffeine, codeine, morphine	-*Atropa bella-donna* (deadly nightshade) -*Berberis spp.* (barberry) -*Coffea arabica* semen (coffee)

Usually, medicinal plants are composed of mixtures of compounds from these groups with a focus on one of the phytochemical groups. The terpene class (mono- and sesquiterpenes, triterpens), polyphenols and the subgroups of glycosides and saponins are among the most common constituents in medicinal plants (WINK, 2005). Furthermore, most alkaloids are considered to be toxic chemical compounds. They are ecologically used by plants to protect themselves against attacks by other organisms (DEBNATH et al., 2018).

However, the two categories of primary and secondary metabolites cannot be

separated completely. Some primary compounds are involved in plant defense and some secondary compounds have roles in plant growth and development (KLEIN, 2006).

Therefore, both the individual pure substances of the plants (phytopharmacy) and the complete plant in medicine and feeding (phytoveterinary medicine) are of great scientific interest. Nowadays, the medicinal properties of numerous plant species are being investigated in the latest scientific research worldwide due to their antioxidant effects, low side-effect potential and cost effectiveness (SHAKYA, 2016). Animals, on the other hand, have always used plants as food, nesting material and as medicine as well.

1.1.2. Self-medication of animals

Animals, especially herbivores, consume large amounts of plants every day (depending on the species). In this context, the aspects of food intake and medication cannot always be distinguished clearly from each other, as the diet makes a decisive contribution to active health maintenance. For this reason, scientists from a wide range of disciplines have always been involved in observing wild animals. For the multidisciplinary study of the self-medicating behavior of animals the term zoopharmacognosy was first introduced in 1987 (ÁLVARO et al., 2019). It is derived from the words zoo ("animal"), pharma ("drug") and gnosis ("knowing") (RODRIGUEZ and WRANGHAM, 1993).

The key questions regarding animal self-medication are: Do animals do it by chance? Is it an innate, instinctive behavior? Or do they learn the benefits of the plants during the course of their lives?

As stated by HUFFMAN (1997), the basic understanding of zoopharmacognosy is that animals use plant secondary compounds or other non-nutritional substances to medicate themselves. According to ENGEL (2004a), the separation between behavior that serves nutritional purposes and behavior that serves health maintenance and therapy is artificial and therefore often difficult. Altogether, self-medication strategies are survival abilities honed by natural selection (HUFFMAN, 2001).

In general, animal self-medication is classified into two types: prophylactic, that means the act of using nature’s medicinal resources without any symptoms of an existing infection or in advance, and therapeutic, which is the act of using nature’s

medicinal resources while having an infection or illness. Furthermore, zoopharmacognosy is not only about pharmacophagic behavior, but also about external applications, such as fur rubs or nest preparations (COSTA-NETO, 2012). The subject of self-medication in wild animals remains controversial because the evidence is mostly circumstantial or anecdotal, but there are numerous purported examples.

1.1.2.1. Prophylaxis

As a prophylaxis, for example, it has been observed that the wildebeests in the plains of the Serengeti in Tanzania move from the lush pastures in the North to the southern plains before calving. There, the grass grows near the volcanoes on ash-rich soil and is therefore rich in calcium and phosphor. This is essential during the suckling period (MCNAUGHTON, 1988). In Australia, for instance, marsupials peel the bark of trees during periods of drought. However, they stop peeling the bark as soon as they discover magnesium leaks (JAKOB-HOFF, 1993; ENGEL, 2004a). Furthermore, several studies on European starlings, both from North America (CLARK and MASON, 1985) and Europe (GWINNER et al., 2000), show that these use fresh green plants like for example *Daucus carota* L., *Achillea millefolium* L. and *Solidago spp*. in North America and especially *Achillea millefolium* L., *Aegopodium podagraria* L. and *Sambucus nigra* L. in Europe as nesting material, even if these plants are not directly available nearby. These plant species contain essential oils in high concentrations that have been shown to reduce infestations of ectoparasites and microorganisms. While these plant species do not kill adult lice or northern bird mites, they have been shown to delay and prevent the appearance of the lice and mites nits. Probably as a consequence, the hatched chicks showed significantly improved vitality and less cases of anemia.

1.1.2.2. Therapeutical

It is more difficult to prove that wild animals use certain herbal substances therapeutically. Therefore, HUFFMAN and SEIFU (1989) introduced a guideline. According to that, the animals should show, preferably quantitatively measurable, symptoms of a disease and look for a substance that is not part of their daily diet. Furthermore, after the use of the substance, the health condition should improve in a period of time consistent with the pharmacologically known properties of the substance (if possible, confirmable by blood and faecal samples) (ENGEL, 2004a).

A few examples are:

Mechanical removal of worms has been observed in eleven different populations of chimpanzees in Africa, as well as eastern lowland gorillas and in bonobos. The animals eat leaves with rough texture, that traps loose worms when the animals swallow it again. The rough textures also cause diarrhea and increase gut motility, helping to shed worms from the body (PROVENZA, 2018). To get rid of internal parasites, Asiatic two-horned rhinoceros eat high amounts of bark of the mangrove (*Ceriops candolleana*) which is rich in tannins (50 to 70 percent tannins) (JANZEN, 1978). Chimpanzees with diarrhea and nematode infection recover within 24 hours by searching for the bitter pith of *Veronia amygdalina* Delile. In one example fecal egg count dropped from 130 to 15 nodular worm eggs within 20 hours (HUFFMAN, 1997). Overall, antiparasitic behavior is found in animals ranging from arthropods to primates, and is undoubtedly the product of a long evolutionary process (HUFFMAN and VITAZKOVA, 2007).

African elephants (*Loxodonta africana*) seek a particular species of tree of the Boraginaceae family, possibly to induce labor. In addition, Kenyan women brew a tea from the leaves of this tree to induce labor (BISER, 1998).

As can be seen, these diverse behaviors of animals have been observed by humans for millennia. For example, one explanation for the discovery of coffee hundreds of years ago is that Ethiopian goat shepherds observed how their animals were positively stimulated after grazing the berries of wild coffee in the highlands of Ethiopia (HUFFMAN, 2003).

1.1.2.3. Animals in captivity

Furthermore, it must be noted that animals in captivity also exhibit the behavior of self-medication with medicinal plants if they have the opportunity to do so.

Our most common pets in Germany, cats and dogs, chew grass from time to time, which they subsequently vomit up, presumably to stimulate digestion and to relieve themselves of bacteria and parasites to some extent (COSTA-NETO, 2012).

PROVENZA (2019) found out that sheep and goats that are infected with internal parasites eat more tannin-rich fodder than non-infected animals. As parasite loads increase, they increase their intake of plant species that are rich in tannins. This decreases parasite loads. On the other side, parasitized sheep reduce intake of high-

tannin forage when their parasite infection is terminated with ivermectin.

Numerous laboratory studies demonstrate that laboratory mice and rats show tendencies to self-medicate. For example, the malaria-infected mice in the experiments of VITAZKOVA et al. (2001) preferred drinking water enriched with chloroquine (derived from red cinchona bark). In addition, emotionally stressed mice (KUZMIN et al., 1996) and rats (RAMSEY and VAN REE, 1993), that were forced to witness another mouse/rat getting electrical shocks, actively use morphine and cocaine to reduce their anxiety.

1.2. Historical use

The oldest indications that plants were used by humans as a treatment date back to prehistoric times, as medicinal plants have been found as grave goods in tombs that are over 60,000 years old (WYNN and FOUGÈRE, 2007a). VON DEN DRIESCH and PETERS (2003b) pointed out that the beginnings of veterinary medicine developed in the context of agriculture in the daily handling of farm animals. Based on archaeological dating, the following years are currently assumed for the four classical domestic animals: Sheep around 8500 BC, goat and pig between 8500 and 8000 BC and cattle around 8000 BC (PETERS et al., 1999).

1.2.1. Global

It can be assumed that all civilizations around the world provided their livestock with medicine using the regional options available.

In India, the “art of caring for animals” can be found in the sacred texts of the Vedic religion. The text collection ATHARVAVEDA (1500 - 1000 BC) mentions the benefits of a protective ointment for human beings, cows and horses. Later Indian medicine developed into the Ayurveda system, which is still known today. For example, one passage of the oldest Ayurvedic treatises in Sanskrit (*Carakasamhita*) contains a list of ingredients for making enemas for elephants, camels, cattle, horses and sheep (MAZARS, 1998; TIWARI and PANDE, 2010). In the early Ayuvedic texts (200 BC - 200 AD) medicinal plants like ricinus, pepper, lily and valerian were mentioned (WYNN and FOUGÈRE, 2007a).

In China, the most fundamental text for human as well as animal medicine is the HUANG DI NEI JING (221 BC - 220 AD) (“The Yellow Emperor's Classic of Internal Medicine”), which was published during the Qin and Han periods. During

the same time, another famous book, entitled LIEXIAN ZHUAN (221 BC - 220 AD) ("The Legend of the Immortals"), described animal therapies using a combination of acupuncture and herbal medicine (LIN et al., 2003). Furthermore, the oldest known drug collection in China is the Chinese "Materia Medica". It is said to have been compiled by Shen-nung - a mythical figure - as early as the year 3700 BC. It is certain, however, that the "Materia Medica" that was written in the 16th century AD by Li Shih-chen mentions over 1,800 drugs and is still famous today for humans and animals (VON DEN DRIESCH and PETERS, 2003b).

However, the oldest known and exclusively veterinary literature document comes from present-day Egypt. This is the veterinary papyrus EL-LAHUN (approx. 1850 BC), in which the chapter on cattle is best preserved. According to the translation by KOSACK (1969), the sick animal was analyzed by means of an examination procedure (adspection and palpation) and then treated without magical components. This also included the use of medicinal plants, such as rubs with herbs and plant juices (VON DEN DRIESCH and PETERS, 2003b).

Historical medicine in the Middle East is well known for its high level in rational approaches to medicine. Its literature was widely read by Arabs and Europeans. IBN AL-AWWAM (1101 -1200) wrote a treatise on agriculture in the 12th century. It mentions numerous plant species and their indications for horse treatment, for example to cure blepharitis and conjunctivitis with centaury and saffron or to cure stomatitis with powder of pomegranate shells (ERK, 1961).

There is not much data about the use of medicinal plants for animals in the Americas because the Native American tribes did not leave transcripts of their knowledge. Nevertheless, there are some records that have been kept in the past century with tribesmen. The British Columbia's Thompson Indians, for example, treated their dogs and horses with the same plant species as they used on themselves (STEEDMAN and TEIT, 1973). The Apache, Navajo and Hidatsa also used plants to treat their horses. The Hidatsa for example used *Artemisia* spp., during the gelding operation, and pregnant mares were encouraged to drink more water by giving them chicory roots (*Cichorium intybus* L.) (LAWRENCE, 1998; LANS et al., 2007).

It must be noted that, typical for traditional folk medicine and botany medicine, a large part of the applications was not recorded in writing, but were passed down

orally through the generations all over the world.

1.2.2. Europe

The oldest European sources for the therapy of diseased animals come from ancient Greece and Rome. Most famous is certainly Aristoteles (383 - 322 BC), who is sometimes called the "father of European veterinary medicine". In his books he discussed the anatomy, physiology and pathology of animals (KARASSZON, 1998).

The oldest text fragments of European veterinary medicine come from ancient Greece and were written in its original form by a total of seven authors (inter alia HIPPOKRATES): the Hippiatrica (200 - 400 AD). Copies of these, made between the 10th and 16th centuries, are still preserved today (MENARD, 2001).

In Rome, twelve volumes of “On Agriculture” were produced by LUCIUS IUNIUS MODERATUS COLUMELLA (1-50 AD), in which applications were recommended such as: “A drench of wild myrtle and wine mixed with hot water for bloat in cattle” or “a daily mixture of leek juice, olive oil and wine to avert death of cattle.” (SMITHCORS, 1957; WYNN and FOUGÈRE, 2007a).

Further notable texts whose authors have contributed significantly to the development of Western herbal medicine in general are: The “Materia Medica” that was published by DIOSKURIDES (65 AD). This book lists more than 500 plants and their effects on humans in a more scientific than religious approach. Furthermore, around 1,000 years later the German abbess HILDEGARD VON BINGEN prescribed different herbs for cattle, goats, horses, pigs and sheep in the textbook “Liber Simplicis Medicinae” (1150 - 1160). She compiled the written beginnings of a German herbal knowledge and added her personal religious spirituality (HAAS, 2000; WYNN and FOUGÈRE, 2007a). Overall, a lot of knowledge about herbal medicine was preserved in the monasteries (BAADER, 1973).

During the subsequent stable master period, herbs were rarely mentioned in the literature with few exceptions, for example for steam inhalation. But overall, therapies and operations, some of which are incompatible with animal welfare law from today’s point of view, became prominent (VON DEN DRIESCH and PETERS, 2003a).

From the 17th to the 20th century, western herbal medicine and veterinary medicine grew closer together again. In the newly founded veterinary schools, the systematic study of medicinal plants (including their cultivation, collection and preparation) was on the curriculum. For example, in the textbook "Veterinary Posology" by BANHAM and YOUNG (1926), numerous plants such as aloe, linseed, peppermint, oak bark etc. were still the standard in powders or formulations for pills. But in the 1940s, with the advent of modern synthetic chemical medicines on the market, the herbal recipes disappeared. Within just a decade, teaching about medicinal plant treatments in veterinary schools was replaced by toxicology of weeds and "poisonous plants" (WYNN and FOUGÈRE, 2007a).

2. Ethnoveterinarian medicine and methods

In the 1970s, the interest of scientists and academics in traditional herbal medicine for animals increased gradually again. The advocates of this millennia-old empirical knowledge of animal keepers and healers campaigned to record and scientifically process it (WANZALA et al., 2005). The birth of today's ethnoveterinary medicine (EVM), the scientific collection of veterinary empirical knowledge, was near.

2.1. Definitions

The term „empirical" is defined as "originating in or based on observation or experience" (WEBSTERS DICTIONARY, 2021). According to BERKES (1993) empirical knowledge respectively experiential knowledge is understood as a complex of cognitive knowledge, manual skills, social organization of action as well as linguistic expressions linked to action. Science is directed toward both "truth discovery" and "practical utility" (BÖHLE, 2003). Empirical knowledge, like it has been held by farmers and veterinarians for thousands of years, is a main point in today's EVM research field. Furthermore, EVM is closely linked to ethnobotany and ethnopharmacology.

Ethnoveterinary research is defined by MCCORKLE (1986) as "systematic research and development which takes as its principal subject or its major departure point folk knowledge and beliefs (theories, taxonomies, definitions, diagnoses, etc.), practices, technology and resources, social organization and so forth pertaining to any aspect(s) of animal health among species raised or managed by human beings".

2.2. Development

This definition of EVM was a milestone in the understanding of traditional veterinary medicine as it is applied and used by the local people themselves. The next significant step was made by the work of MATHIAS-MUNDY and MCCORKLE (1989), which is an annotated bibliography comprising 261 references, with a focus on EVM on the African continent, Latin America and parts of Asia. This was followed by ZEUTZIUS (1990), who published a similar volume of work with 300 references. The two bibliographies complemented each other, and analytically, their agendas seem to be the same, as they emphasize the need to focus research on EVM (WANZALA et al., 2005). Numerous further professionals from various fields around the world followed this example (e.g., MUASYA, 1993; ABBASS et al., 1994; KÖHLER-ROLLEFSON, 1994; FARAH et al., 1996; MATHIAS, 1996; MUNYUA et al., 1998) so that in 2000 already an annotated bibliography abstracting over 1,200 documents (MCCORKLE et al., 1996; MATHIAS et al., 1999; MARTIN et al., 2001) was published. It deals with socio-cultural, politico-economic, environmental and biomedical aspects of EVM all over the world (MARTIN et al., 2001). Today, a sizeable body of published literature exists, with a steadily growing academic interest including numerous annual publications every year in this research field (e.g., GA Congress or the Journal of Ethnopharmacology).

Based on the experience of THRUSFIELD (1986), MATHIAS-MUNDY and MCCORKLE (1989) and MARTIN et al. (2001), most of the recipes and applications reproduced by traditional healers, farmers and animal keepers are a mixture of experiential medical knowledge and religious-magical components (WANZALA et al., 2005). Separation can be very difficult and as LAWRENCE (1988) described, it is pointless to merely list the therapeutic approaches. It is important to see it in a cultural context. For instance, one line of thought among herders in the Andes is to keep their livestock away from cold, breezy places because of the presence of evil spirits and winds there. In non-religious terms, this is a useful management strategy to prevent respiratory diseases and pneumonia today (MCCORKLE, 1986). This example shows that actions according to the religious explanation of indigenous peoples (and also of our ancestors) can lead to the same goal as today's Western veterinary way of thinking, but were justified non-scientifically by the livestock holders.

2.3. Guidelines

It is therefore essential to record the experiential knowledge precisely, under the respective cultural circumstances, and to consider it afterwards according to today's evidence-based points of view.

It is also important to note that studies on the use of medicinal plants in general (in Europe or elsewhere) report the status quo, i.e., a current picture of traditional medicine (TM). The World Health Organization, WHO (2013a) defines TM in general as "the sum total of the knowledge, skill and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health as well as in the prevention, diagnosis, improvement or treatment of physical and mental illness." Furthermore, in our contemporary globalized world, the mechanisms of selection and transmission of knowledge related to specific plant use are increasingly influenced by text and media. So there is a risk that a circle of information has been generated, which progressively conditions itself generating a feedback loop (LEONTI, 2011).

In order to create a framework based on good scientific practice, two guidelines for ethnopharmacological field studies in general, but also for human as well as veterinary medicine were recently drafted: "Recommended standards for conducting and reporting ethnopharmacological field studies" (WECKERLE et al., 2018) and "Best Practice in Research: Consensus Statement on Ethnopharmacological Field Studies – ConSEFS*" (HEINRICH et al., 2018).

3. State of the research

3.1. Field studies

According to the WHO (2013b) around 80% of the population in developing countries have to rely on indigenous practices for the treatment and control of various diseases in humans and their animals (SRI BALAJI and VIKRAMA CHAKRAVARTHI, 2010). But EVM is also highly respected in several wealthy societies, such as Japan, Korea, and the industrialized parts of Southeast Asia and Europe, as well as North America and Oceania (LIN et al., 2003).

In the last decades EVM studies have been conducted worldwide, mainly in Africa, Asia and Central America (LANS et al., 2007; MCGAW and ELOFF, 2008; MCGAW et al., 2020; SIKARWAR and TIWARI, 2020).

European EVM research has been done mainly in the Mediterranean region (BLANCO et al., 1999; MANGANELLI et al., 2001; VIEGI et al., 2003; PIERONI et al., 2004; PIERONI et al., 2006; AKERRETA et al., 2010; GONZÁLEZ et al., 2011; VIEGI and VANGELISTI, 2011; BENÍTEZ et al., 2012; VIEGI and GHEDIRA, 2014; BULLITTA et al., 2018). A review study by MAYER et al. (2014) deals predominantly with the data from these Mediterranean countries. In the publications evaluated, a total of 590 plant species from 102 plant families were described for the treatment of animals. Asteraceae, Fabaceae and Lamiaceae were the most frequently mentioned plant families. Furthermore, numerous studies were conducted in Switzerland (KLARER et al., 2012; SCHMID et al., 2012; DISLER et al., 2014; BISCHOFF et al., 2016; VOGL et al., 2016; MAYER et al., 2017; MERTENAT et al., 2019; STUCKI et al., 2019; FUCHS and GLARDON, 2021). A particular focus of the Swiss studies was to determine exact dosage information for the plant formulations described by the farmers. This data contributed considerably to the development of the category “medicinal plants” on the pharmacological database CLINIPHARM/CLINITOX (2021).

Some ethnoveterinary field studies were carried out in Austria (GRABOWSKI, 2010; SCHUNKO and VOGL, 2010; VOGL et al., 2016) and more recently a few in Eastern European countries, notably in Romania (BARTHA et al., 2015), Serbia (SUBAREVIC et al., 2015) and in Belarus (SÕUKAND et al., 2017).

Well-known plant species such as *Calendula officinalis* L., *Matricaria recutita* L. and *Quercus spp*. were mentioned in all of the European studies. Nevertheless, each study also includes rare and regionally typical plant species that are used by the farmers to maintain the health of their animals. For example, the use of *Bellis perennis* L. in a targeted manner was only reported by livestock farmers in Switzerland (BISCHOFF et al., 2016; MERTENAT et al., 2019). *Ficus carica* L. and *Pistacia lentiscus* L., were mentioned according to their natural habitat, only in the Mediterranean study areas (BLANCO et al., 1999; BULLITTA et al., 2018). The most frequently reported treatment in European EVM studies is the treatment of ruminants (PIERONI et al., 2006; SUBAREVIC et al., 2015). Applications of medicinal plants for gastrointestinal disorders and dermatological problems are mentioned most often (MAYER et al., 2014).

However, data from Western, Central and Northern Europe is still lacking.

3.2. Relevance of ethnoveterinary medicine

Nowadays, EVM is not labelled a myth, superstition or witchcraft anymore. Instead, the role of EVM in livestock development is undeniable (MARTIN et al., 2001; WANZALA et al., 2005). There is an increasing interest of veterinarians in herbal medicine worldwide (WALKENHORST et al., 2014; ABO-EL-SOOUD, 2018; KUPPER et al., 2018; SHIN and PARK, 2018).

One possible reason for the increasing interest in EVM is antibiotic and antiparasitic resistance in human and animal pathogens being a growing global health threat and a cause of concern. According to general pharmaceutical sale data, the worldwide antibiotic consumption (expressed in defined daily doses (DDDs) per 1,000 inhabitants) increased by 65% from 21.1 to 34.8 billion DDDs between 2000 and 2015 (KLEIN et al., 2018). There is evidence that farm animals act as a reservoir of resistance genes and that transmission of such genes to humans could occur either via direct contact, via food consumption (WHO, 2004; MARSHALL and LEVY, 2011) or into the wider environment via the excrements (HAO et al., 2008; ZHOU et al., 2020). Due to the projected growth in consumer demand for livestock products in middle-income countries it is estimated that antimicrobials used in livestock production will increase by 67% worldwide between 2010 and 2030 (VAN BOECKEL et al., 2015).

Alert to this crisis, the May 2015 World Health Assembly adopted a global action plan on antimicrobial resistance within the call for minimizing the use of antibiotics (WHO, 2015).

In Germany, a National Strategy on Antibiotic Resistance (DART) has been developed already in 2008 to control and combat the development of antimicrobial resistance (DIE BUNDESREGIERUNG, 2008). This was further intensified in 2015 with the follow-up strategy DART 2020 in order to meet the WHO requirements for this field (DIE BUNDESREGIERUNG, 2015). One of the main measures of DART in the field of veterinary medicine is the establishment of an antibiotic minimization concept for farms. This was introduced by law with the 16th amendment to the German Medicines Act (AMG, 2020).

Thanks to these efforts, a clear decline in the quantity of antimicrobial veterinary medicines dispensed in Germany can be seen. In 2019, the dispensed quantity fell by 52 tons compared to the previous year to 670 tons (minus 7.2%), reaching the lowest level since the first recording in 2011 with 1706 tons. This corresponds to a decline of 60.7% over this period (BMEL, 2020).

Nevertheless, a complete renunciation of antibiotics and no longer providing adequate medical care for farm animals is not justifiable from an ethical point of view (TIERSCHUTZGESETZ §1 and §17, 2020). It is therefore necessary to find sufficient treatment alternatives and supplements in the long term. Medicinal plants could be such an active substance-based alternative. In this context, the exploration of medicinal plants as a novel source of veterinary therapeutics could reverse antimicrobial resistance when used in combination with conventional antibiotic drugs (IRITI et al., 2020). In addition, the use of plant products in first-line treatment of mild cases (AYRLE et al., 2016) or prevention (AYRLE et al., 2019) could possibly lower the need for antibiotic treatments in livestock holdings.

Furthermore, the WHO encouraged consumers, practitioner communities and researchers to become actively involved in setting standards and regulating training, services and therapies for TM systems worldwide (WHO, 2013b).

Moreover, the European guidelines for organic farming (EUROPEAN PARLIAMENT, 2018) advocate veterinary use of herbal medicines: „(...) chemically-synthesized allopathic veterinary medicinal products, including antibiotics, may be administered, if necessary, under strict conditions and under the responsibility of a veterinarian, if treatment with phytotherapeutic, (...) remedies is unsuitable.” This underscores the role of EVM to close the gap between therapeutic inaction and conventional therapy in mild cases of disease.

4. Herbal veterinary medicinal products

Overall, ethno (veterinary) medicine and ethnopharmacology research contribute to the fields of both pure drug discovery and the development of herbal medicines (ELVIN-LEWIS, 2001; FABRICANT and FARNSWORTH, 2001). In this context, drug discovery from natural products focuses on "drug-ready" chemical substances that are purely bioactive and bioavailable. Research in herbal (veterinary) medicine focuses on characterizing more complex pharmacological interactions as it is based

on an extract that contains many different chemical substances (LEONTI, 2013). The combination of several plants in mixed preparations is even more complex. For their interactions and possible resulting effect in connection with efficacy, there is a lack of verifiability so far. Evidence can therefore only be generated for specific active ingredients or indications, but not for an entire therapeutic approach, such as (veterinary) phytotherapy (KRAFT and MÄRZ, 2006).

4.1. Commercial products on the market

Botanical compounds have a number of beneficial therapeutic properties that are important for animal welfare. These compounds are used as repellents and antiparasitics or to treat the gastrointestinal, respiratory, reproductive, urinary or nervous systems (DAVIDOVIĆ et al., 2009). Therefore, the indication areas for herbal (veterinary) medicinal products, both phytopharmaceuticals (whole plant products) and extracted single substances (pharmaceuticals), cover a wide range.

If we take a look at the drug products produced for the human medicine market: Of the 252 drugs considered as basic and essential by the WHO, 11% are exclusively of plant origin. Regarding the isolated herbal active substances, which are pharmaceuticals, a considerable proportion of the synthetic drugs on the market is derived from natural precursors. Examples of important medicines derived from plants are atropine from *Atropa bella-donna* L. and morphine and codeine from *Papaver somniferum* L. (RATES, 2001). For Germany, this implies that around 2,700 human phytotherapeutic products are authorized and registered in a slightly smaller number (RICHTER et al., 2014).

However, in contrast to this, only 15 herbal veterinary medicinal products are currently authorized for use in domestic and farm animals in Germany. Further five (for pigeons, fish and rodents) are available over-the-counter and are currently exempt from compulsory marketing authorization according to §60 AMG, as it can be seen on VETIDATA (2021). All these medicinal products are listed in Table 2 (Appendix 3).

Furthermore, as shown in previous studies from Eastern Europe (SÕUKAND et al., 2017) and Switzerland (DISLER et al., 2014; STUCKI et al., 2019), products marketed as food supplements or cosmetics are also used by livestock owners for their animals. Especially over-the-counter medicinal plants such as flax, chamomile, peppermint and marigold are very popular and can be found easily in

drugstores or supermarkets.

4.2. Traditional preparation

A large number of veterinary herbal medicines are also produced directly by livestock holders and other animal keepers at home. These are the typical homemade herbal remedies that have been produced for generations and serve as a knowledge base for the products and medicines that are available for purchase. The recording of the different production routes is typically included in ethnoveterinary studies and were for example listed in detail in these studies: SCHMID et al. (2012), YIGEZU et al. (2014) and MARKOVIC et al. (2020). They describe the origins of the medicinal plants used, the parts of the plants, their conditions and forms of preparation, including details of the ointment bases, oils etc. that are used by the farmers. The preparations of traditional herbal homemade remedies vary based on the type of disease treated and the actual site of the ailment.

The preparations serve to optimize the availability of the active substances. Medicinal plants are used freshly or dried. Usually, medicinal plants are given purely (e.g. powdered) or their preparations are made by means of extraction. Water (as maceration, infusion or decoction), ethanol mixtures (for tinctures), oil or fat, and more rarely vinegar, salt or honey are used as extracting agents for traditional herbal homemade remedies. Depending on the form of formulation and the respective medicinal plants, these can be applied internally (typically as tea or latwerges in traditional veterinary medicine) or externally (for example ointments, emulsions, compresses and poultices) (BRENDIECK-WORM, 2018). The preparations may consist of a single medicinal plant or a combination of medicinal plants. Furthermore, other natural substances such as honey, salt, vinegar, etc. can be added or used purely as a remedy containing natural substances in EVM (BISCHOFF et al., 2016; MAYER et al., 2017).

According to ethnoveterinary studies (e.g., SCHMID et al., 2012; DISLER et al., 2014; MARKOVIC et al., 2020), water extractions seem to be by far the most common preparation among farmers in Europe.

4.3. Current situation in European law

In principle, extracted single substances (pharmaceuticals) can be assigned quite easily to the area of responsibility of pharmaceutical law. For phytopharmaceuticals, the situation is more diverse: They are found in the areas of

farmyard meadow fodder and animal feed (feed law), biocidal products (in the sense of chemicals law), foodstuffs, cosmetics and care products (food law) and medicinal products (medicinal products law). The exclusive assignment of individual plant species (or their parts) to one area of law is unfortunately not possible from a technical point of view (WALKENHORST, 2018).

At the moment the dwindling legal possibility of simplified authorization of veterinary herbal medicines is causing problems in Germany and across the EU. While for example Switzerland incorporated the use of medicinal plants as pharmacological active substances by veterinarian into law in recent years (KPAV, 2020), this treatment option is threatened to disappear throughout the EU. But the new European regulation on veterinary medicinal products (EUROPEAN PARLIAMENT, 2019/6) offers hope that a simple authorization might be possible in the next years according to Preamble 12: “There is insufficient information to date on traditional herbal products used to treat animals in order to allow the setting up of a simplified system. Therefore, the possibility of introducing such a simplified system should be examined by the Commission based on the information provided by the Member States on the use of such products on their territory.” According to Article 157 of this regulation (EUROPEAN PARLIAMENT, 2019/6), the Commission shall report to the European Parliament and to the Council by 29 January 2027 on traditional herbal products that are used to treat animals. Nevertheless, available data, especially dosage information and efficacy evidence in animals is sparse at the moment but essential to ensure tested and safe products.

In Table 1 of the Commission Regulation No. 37/2010 (EUROPEAN COMMISION, 2010), 60 plants are listed which may be used as phytotherapeutics in food-producing animals. These are mainly freely marketable plants, including numerous "fodder plants" such as *Urtica* herba (stinging nettle), for which no maximum residue limits have to be observed. *Aristolochia* spp. and preparations containing *Cholchicine* are generally prohibited for use in food-producing animals (EUROPEAN COMMISION, 2010; Table 2).

Furthermore, strongly effective medicinal plants are not available in pharmacies as phytotherapeutics but as so-called mother tinctures or low potency homeopathics (D1 to D4), presumably due to the simplified legal provisions for homeopathics. According to the principles of classical homeopathy these remedies cannot be considered as homeopathic remedies but rather as herbal ones. They contain herbal

ingredients in measurable and allopathic dosages (CSUPOR et al., 2013).

In human medicine, 330 plants were monographed in 1994 by Commission E of the Federal Institute for Drugs and Medical Devices (EUROPEAN COMMISSION, 1994). Further monographs have been published annually since (ESCOP MONOGRAPHS, 2003, 2009; ESCOP MONOGRAPHS ONLINE, 2021; HMPC MONOGRAPHS, 2021). They are based on historical literature, medical case reports and (as far as available) clinical studies, and they are divided into positive and negative monographs. Based on this weighing of benefits and risks, an important basis for the authorization of traditional herbal medicinal products was created. For veterinary medicine, such a listing is missing so far.

In order to establish such a knowledge base also for veterinary medicine and to consolidate the legal situation for harmless and useful medicinal plant preparations, data about recent pharmacological and medical literature, *in vitro* and *in vivo* studies, zoopharmacognosy, knowledge by the practitioners and international historical literature are necessary. The present study, which documents the indigenous veterinary knowledge about the use of medicinal plants in livestock nowadays as well as the predominantly local Bavarian historical book knowledge, contributes to filling the knowledge gap that still exists in Northern and Central Europe.

III. MATERIALS & METHODS

This was the first ethnoveterinary study conducted in Bavaria. The methodology was based on a similar principle as in previous studies from Switzerland (SCHMID et al., 2012; DISLER et al., 2014; BISCHOFF et al., 2016; MAYER et al., 2017; STUCKI et al., 2019).

1. Geographic area of the study

The study area included all seven districts of Bavaria in the South East of Germany, which has never been surveyed for ethnoveterinary medicine use previously. Bavaria covers an area of 70,541.57 km² and 13,076,721 inhabitants (STATISTISCHE ÄMTER DES BUNDES UND DER LÄNDER, 2018) .

The altitude reaches from 100 m above sea level (MSL) in Kahl am Main (Lower Franconia) to the highest peak at 2,962 m (Zugspitze) in the Wetterstein mountains. According to this wide difference in altitude, temperature and precipitation vary considerably between the North and South. The average temperature ranges from 10 °C in Lower Franconia (200 m MSL) to 6 °C in the Allgaeu (500-700 m MSL) and to -5 °C on the Zugspitze. In Southern Bavaria the average precipitation is 2,000 mm and in the northern parts of Franconia 500-900 mm (BAYERISCHES LANDESAMT FÜR UMWELT, 2020).

In 2016 a total of 90,162 farms (working on 3,125,366 ha) existed in the study area. Of these, 10,600 (10.8%) were organic farms (366,000 ha). They constitute 30% of all organic farms in Germany (BAYERISCHES STAATSMINISTERIUM FÜR ERNÄHRUNG LANDWIRTSCHAFT UND FORSTEN, 2016).

Of all Bavarian farms, 46,000 kept cattle (with 3,134,000 animals in total), 6,321 kept sheep (210,000 mother sheep), 4,317 kept goats (35,981 animals >1 year), 5,100 kept pigs (3,308,000 animals), 20,500 kept laying hens (4,637,091 animals), 870 kept boiler chickens (5,393,536 animals) and 15,289 kept horses (103,872 animals) (BAYERISCHES LANDESAMT FÜR STATISTIK, 2016, 2018).

2. Farms and dialogue partners

Dialogue partners (DPs) for the interviews were recruited by several approaches in parallel (Figure 1).

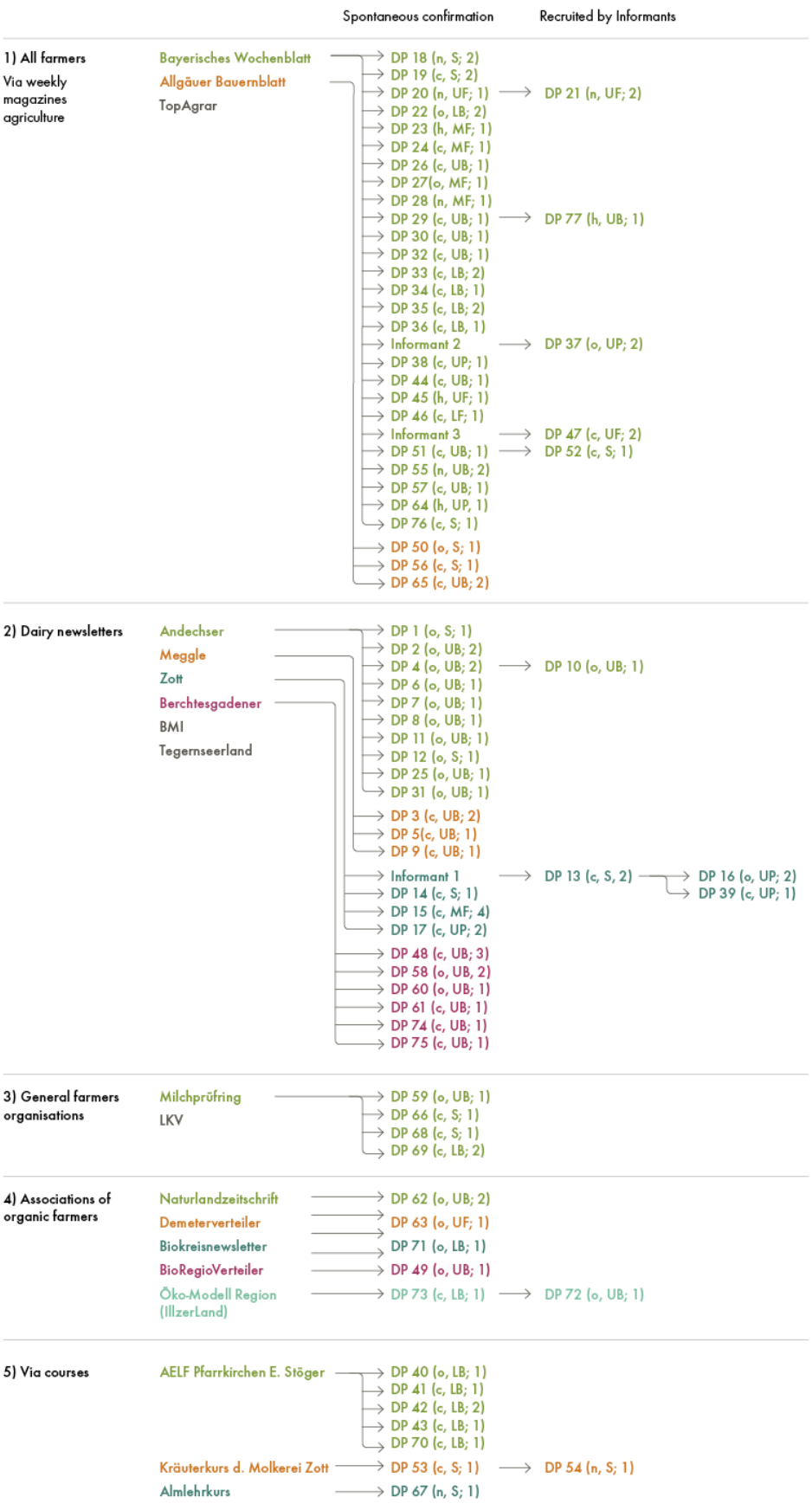


Figure 1: Recruitment of dialogue partners for the study. (DP = Dialogue Partner; Informant

= persons without own knowledge but leading to a DP via snowball sampling; n = no farm, h = hobby holder, c = conventional, o = organic production; district: S = Swabia, LF = Lower Franconia, MF = Middle Franconia, UF = Upper Franconia, UP = Upper Palatinate, LB = Lower Bavaria, UP = Upper Bavaria; number of participants per DP).

To have the possibility to reach every person with agricultural background in the study area, an article about the project, including contact data and interview procedure, was published in the weekly agricultural newspaper "Bayerisches Landwirtschaftliches Wochenblatt" with 90,262 prints (DEUTSCHER LANDWIRTSCHAFTSVERLAG, 2018) (Appendix 4). 25 DPs participated through this call. Furthermore, a call for participation was published in other national and local magazines (topAgrar and Allgäuer Bauernblatt), which brought 3 DPs.

Holders of cattle, goats and sheep were informed via dairy newsletters between September 2018 and January 2019. This included smaller regional dairies to dairies that receive milk from thousands of farmers. 22 DPs from this source participated in the study.

Information distributed by farmers organizations (Milchprüfring and LKV) and especially several associations of organic farmers generated 9 DPs.

Another way to contact farmers was to present the project on courses for livestock holders (7 DPs).

From these methods of contact, 66 DPs established the contact spontaneously via phone or mail. Eleven further interviews were established via recommendation from another person. Three persons acted as pure informants and 8 DPs informed and asked their acquaintances to also participate in the study.

Livestock holders from all seven districts of Bavaria were reached with this strategy (Figure 2). A total of 77 interviews with 101 participants were carried out. Most of the interviews were held with a single, main DP, but in several cases other adult family members (spouses and parents (in law) or farm employees also took part in the conversation). All information obtained were merged with those of the main DP. The youngest participant was 21 years old and the oldest participant at the time of the interview was 95 (arithmetic mean: 56 years). Nearly two thirds of the participants were women (66.3%) and one third were men (33.7%).

A total of 66 of the 77 DPs ran a farm. Four DPs held their livestock animals as a hobby and seven DPs were retired and did not live on a farm anymore.

19 of the 66 farms were sideline farms. Animal holding was the main occupation for the other 47 farms. Apart from two pensioners, that kept only chicken, all DPs kept various numbers and species of animals. All of the main occupation farms held cattle (98 cattle on average). The largest farm held 270 cattle, including 180 dairy cows. The smallest cattle holding was a sideline farm with two cows. Twelve kept sheep (2 - 250), five had goats (4 - 64), 35 kept chicken (2 - 200), twelve kept pigs (1 - 1,000) and 13 had horses (1 - 8). Also, further animals lived on the farms like dogs, cats, rabbits, donkeys, alpacas, lamas, nandus and various poultry.

The farms were located between 280 m MSL and 972 m MSL, some of their animals were kept at alpine huts up to 1,600 m above sea level (mean: 579 m, standard deviation: 219 m).

The interviews were conducted between October 2018 and July 2019.

Figure 2: Distribution and type of dialogue partners (DP) within the seven districts of Bavaria,

the most southeastern federal state of Germany. (c = conventional farm, o = organic farm, h = hobby keeping, n = no farm). Original image source: Bayern-Regierungsbezirke.svg licensed with CC-BY-SA-3.0, GFDL 2008-11-08T22:36:28Z Willtrom.

3. Data collection and analysis

Collection and analysis of the data was guided by the procedures of previous studies in Switzerland (SCHMID et al., 2012; DISLER et al., 2014; BISCHOFF et al., 2016; MAYER et al., 2017; MERTENAT et al., 2019; STUCKI et al., 2019) and according to the recommended standards from HEINRICH et al. (2018) and WECKERLE et al. (2018).

An open, semi-structured interview was carried out with each DP (Appendix 5). First of all, the respondents were asked to give their written approval for recording the interview with a digital voice recorder (Olympus WS852, Olympus Imaging Europa GmbH). The content of the conversation was written down on a semi-structured questionnaire. This included: (1) general information about the dialogue partner and the farm, (2) eight free listing questions and (3) a questionnaire to get differentiated information about the homemade remedies, especially their herbal and natural ingredients and their way of application and administration. The aim of this structure for every single face-to-face interview was to get a pleasant but also informal atmosphere for the farmers in which they could speak freely about their empirical knowledge.

The interviews took between 30 minutes and 8 hours. Some of them included a tour around the farm and searching the mentioned plants. German and regional colloquial names of the plants were crossed-checked by utilizing the plant identification book “Flora Helvetica” (LAUBER K. and WAGNER G., 2007). If no fresh or dried plant material was available, further cross-checking was done based on information and material that was collected in earlier studies (DISLER et al., 2014; MAYER et al., 2017; STUCKI et al., 2019). Commercial products or extracts from commercial sources were identified via the package leaflet. If no package leaflet was available, they were looked up as correctly as possible at the local pharmacy or information from the manufacturer. The scientific plant names in the present work were verified with the Kew Science database “Plants of the world” (POWO, 2021).

Furthermore, the origin of the knowledge, location of plants and modes of preparation for administered products were recorded.

In the course of the interview, the DP explained the individual manufacturing steps of the homemade remedies in detail. Whenever possible weights of the ingredients were determined or checked with a laboratory scale (PCB, 3500-2, Kern, Balingen, Germany) based on the original raw materials of the farmers.

If no material was available on site, the DPs were asked to use a herbal drug collection that was brought by the interviewer, and to adjust and weigh the appropriate dosage.

In some cases, an equivalent drug had to be taken or the plant had to be weighed again by the interviewer at a later point in time. Some farmers weighed the drugs again for the appropriate season and transmitted the result digitally (e.g., green walnuts in July).

All measured values were converted to the corresponding amount of the dried raw drug in order to be able to determine the daily dose.

For this purpose, the exact application steps, route and frequency as well as the indications were asked for each individual homemade herbal remedy. The routes of application were classified into internal, external and treatment of the housing environment. If the homemade herbal remedy was administered into a body orifice (oral, nasal, intravaginal, rectal, intracisternal) it was classified as internal administration. For external applications, the respective body region was queried and a distinction was made between intact and non-intact skin tissue. The DPs described the indication in their regional dialect like for example “Igel” in the Allgaeu as a synonym for “panaritium”. All this information was sorted by ATCvet codes (WHO, 2018) to generate an overview of the categories of use and the relevance of homemade herbal remedies on Bavarian farms.

The daily dosage was calculated for all medicinal plants for which an application for oral administration was reported. To achieve a common basis for comparison between different species including humans, daily dosages were normalized by taking into account the different weights of the species by conversion of all dosages in dosage per kilogram metabolic body weight (RICHTER and UNGEMACH, 2014) according to the following formula:

$$daily\ dosage\left(\frac{g}{kg^{0.75}}\right) = \frac{dry\ plant\ equivalent\ (g)\ per\ application\ \cdot repetition\ per\ day}{metabolic\ body\ weight\ (kg^{0.75})}$$

Table 3 shows the MBW and the average live weight of animal species and age classes as described by DISLER (2014) and SAMBRAUS (1996).

Table 3: Metabolic bodyweight (MBW) of different species based on estimated average body weights (according to DISLER et al. 2014 and SAMBRAUS 1996).

Species	**Weight**	**Metabolic bodyweight (MBW)**
Adult cattle	650 kg	128.7 $kg^{0.75}$
Calf	75 kg	25.5 $kg^{0.75}$
Pig	200 kg	53.2 $kg^{0.75}$
Young pig	15 kg	7.6 $kg^{0.75}$
Donkey	200 kg	53.2 $kg^{0.75}$
Sheep	80 kg	27.0 $kg^{0.75}$
Young sheep	20 kg	9.5 $kg^{0.75}$
Medium-sized dog	25 kg	11.2 $kg^{0.75}$
Rabbit	3 kg	2.3 $kg^{0.75}$
Hen	1 kg	1.0 $kg^{0.75}$
Rat	0.175 kg	0.3 $kg^{0.75}$
Human	65 kg	22.9 $kg^{0.75}$

In addition, the frequency of use and the last date of use for the homemade herbal remedies were gathered.

Also, the source of knowledge of the application for the respective animal species were asked, as well as the application of additional therapies besides the homemade remedies.

The satisfaction with each application of homemade herbal remedies was assessed with a visual analogue scale (VAS) as a reliable, practical and valid measurement.

Respondents could decide on a continuous scale between the endpoints ‘no effect’ (0 mm) and ‘very good effect’ (100 mm) (ZEALLEY and AITKEN, 1969).

Here, the general satisfaction of the user for the URs was asked and not about individual cases. Criticisms such as too long preparation time etc. were also noted. For each category of use, the arithmetic mean and standard error of the VAS values were determined.

All data were stored in a Microsoft Access database.

4. Further definition of the applied ethnoveterinary units

The same definitions as in previous studies on other German speaking regions were used (DISLER et al., 2014; BISCHOFF et al., 2016; MAYER et al., 2017; MERTENAT et al., 2019; STUCKI et al., 2019).

Homemade remedy report (HR): [dialogue partner] x [plant species or other natural product] x [plant part] x [manufacturing process of the finished product]

Homemade single species herbal remedy report (HSHR):
[dialogue partner] x [one single plant species alone or combined with other natural product] x [plant part] x [manufacturing process of the finished product]

Use Report (UR): [homemade single species herbal remedy report] x [category of use] x [specification of use] x [animal species] x [animal age classification] x [administration procedure]

5. Historical regional literature

Some DPs mentioned and showed two regional old books on animal healthcare, which they inherited from their ancestors: ZIPPERLEN (1959) (year of the first edition was 1867) and MANGOLD and REICHERTER (1907) (the first edition was published in 1885). The therein recommended applications which included one single plant species with or without other natural products were digitalized in tabular form (Appendix 6). In this context, the information on the single remedies was recorded in a differentiated and systematic manner based on the data from the field study. This included the preparation of the plant species as well as the dosage and administration method for the respective animal species and indication.

They were defined as:

Historical book use report (HBs-UR): [book] x [plant species] x [plant part] x [extraction procedure] x [administration] x [ATCvet] x [sub-indication] x [animal species] x [animal age classification]

IV. RESULTS

1. General

A total number of 716 homemade remedy reports (HRs) for altogether 884 use reports (URs) were documented in this study. Each conversation produced between one and 21 different HRs (mean: 9 HRs per DP) and between one and seven different URs per HR (mean: 1.2 URs). The HRs referred to 198 plant species which belonged to 68 botanical families.

Of the 716 HRs, 497 included at least one plant species and 219 contained no plant species, but other natural products like for example schnapps (22 HRs), curd (22 HRs), eggs (20 HRs), beer (17 HRs), oil (14 HRs), vinegar (12 HRs), salt (7 HRs) and sugar (6 HRs).

Regarding their composition 314 HRs (44%) were single-plant recipes with no other ingredients, 201 HRs (28%) consisted of a single no-plant drug and further 201 HRs (28%) described mixtures which contained between two and 19 ingredients (mean: 4).

Of all 716 HRs, 363 recipes consisted of a single plant or a composition of one single plant with other natural products but no further plants (homemade single species herbal remedy reports, HSHRs). Of these, 314 HSHRs consisted of one single plant, and 49 were a mixture of one plant with one or more other natural products. The present work focuses on the HSHRs.

2. Homemade single species herbal remedy reports

The 363 HSHRs referred to 108 plant species belonging to 57 botanical families.

Calendula officinalis L. was the most frequently mentioned plant species (31 HSHRs, 9%), followed by *Linum usitatissimum* L. (24 HSHRs, 7%), *Urtica dioica* L. (23 HSHRs, 6%), *Hypericum perforatum* L. (13 HSHRs, 4%), *Picea abies* (L.) H.Karst. (12 HSHR, 3%) and *Quercus robur* L. (12 HSHR, 3%). Table 4 (Appendix 3) shows all 108 plant species and the according HSHRs in more detail. This includes the used plant part, its origin and the preparation procedure that was used by the farmers.

For nearly half of the HSHRs (167 HSHR, 46%) the herbal components were bought or received (including 37 commercial products like “Kamala Fruchthaarpulver”, “tee trea essential oil” and pharmaceutical tinctures). Herbal components for 129 HSHR (35%) were collected in nature and for 67 HSHRs the herbal components were cultivated on the farms (19%). In most HSHRs, the remedies were prepared using an extraction process on the farm (192 HSHRs, 53%) and nearly one third of the HSHRs (115 HSHRs, 32%) were directly administered without any extraction procedure. The others (56 HSHRs, 15%) were bought ready-to-use.

For 118 HSHRs, an aqueous extraction was reported. In 15% of the aqueous extractions (18 HSHRs) the water was used at room temperature, in 85% (100 HSHRs) the water was heated up. 55 HSHRs were prepared as an infusion, most frequently named “Schwarzer Tee” (Black Tea, *Camellia sinensis* (L.) Kuntze) and “Kamillentee” (Camomile tea, *Matricaria recutia* L.). 45 preparations were decoctions e.g., “Leinsamenschleim” (Flaxseed slim, *Linum usitatissimum* L.) and “Morosche Karottensuppe” (Moro’s carrot soup, *Daucus carota* L.).

Oil or fat were used for 34 HSHRs, and alcohol was used for extraction for 31 HSHRs.

3. Use reports

3.1. Treated animal species

For the 363 HSHRs, a total of 448 use reports (URs) were described. Table 5 (Appendix 3) shows the route of administration, categories of use and animal species treated for all URs. 340 URs (76%) were for cattle, 33 URs were for small ruminants, 23 for Equidae, 20 for chicken, 17 for dogs and 15 were for the treatment of other animal species, namely pigs, rabbits, cats and one for pigeons.

3.2. Category of use

The distribution of the URs according to ATCvet Codes is shown in Figure 3.

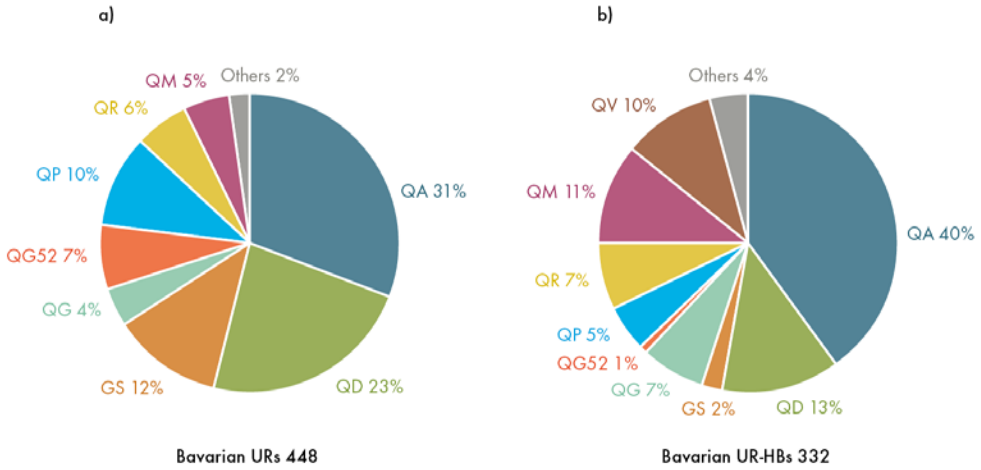


Figure 3:
On the left: Distribution of the 448 Bavarian ethnoveterinary use reports (URs) from the field study according to veterinary therapeutic indications of the Anatomical Therapeutic Chemical Classification system for veterinary medicinal products (ATCvet codes):
QA = Alimentary tract and metabolism (139 URs); QD = Dermatologicals (101 URs); GS = General strengthening (53 URs); QG = Genito urinary system and sex hormones (19 URs), QG52 = Products for teats and udder (31 URs); QP = Antiparasitic products, insecticides and repellents (46 URs); QR = Respiratory system (28 URs); QM = Musculoskeletal system (22 URs); others = Sensory organs (QS, 5 URs), varia (QV, 3 URs), Nervous system (QN, 1UR).

On the right: Distribution of the 332 Bavarian ethnoveterinary historical book use reports (UR-HBs) from two regional historical textbooks according to ATCvet codes:
QA = Alimentary tract and metabolism (132 UR-HBs); QD = Dermatologicals (43 UR-HBs); GS = General strengthening (6 UR-HBs); QG = Genito urinary system and sex hormones (24 UR-HBs), QG52 = Products for teats and udder (3 UR-HBs); QP = Antiparasitic products, insecticides and repellents (17 UR-HBs); QR = Respiratory system (24 UR-HBs); QM = Musculoskeletal system (36 UR-HBs); QV = Varia (32 UR-HBs);
others = Blood and blood-forming organs (QB, 3 UR-HBs), Cardio vascular system (QC, 1 UR-HBs), Nervous system (QN, 7 UR-HBs), Sensory organs (QS, 4 UR-HBs).

The largest number of URs were for the treatment of gastrointestinal disorders and metabolic dysfunction (QA: 139 URs, 31%). *Linum usitatissimum* L. (20 URs), *Quercus robur* L. (11 URs), *Daucus carota* L. (9 URs) and *Camellia sinensis* (L.) Kuntze (9 URs) were the most frequently mentioned plants for this category.

Roughly a quarter of the URs (101 URs, 23%) were for dermatological problems including the treatment of skin alterations and sores (QD). Thereof in one third of these *Calendula officinalis* L. (34 URs) was used, followed by *Hypericum perforatum* L. (10 URs) *and Arnica montana* L. (8 URs).

Other categories of use were general strengthening (GS, 53 URs, 12%), parasitosis (QP, 46 URs 10%), mastitis (QG52, 31 URs, 7%), diseases of the respiratory tract

(QR, 28 URs, 6%), diseases of musculoskeletal system (QM, 22 URs, 5%), genito-urinary treatments (QG, 19 URs, 4%) and a few others (9 URs, 2%).

Urtica dioica L. (16 URs) was the most often used plant species for general strengthening, for example as a cure during winter or for a rapid recovery after hard illnesses. *Linum usitatissimum* L. (6 URs) was often named around the time of the birth for cow and calf and *Coffea* L. (4 URs) especially for circulatory support after the birth.

In context of parasitosis, *Mallotus philipinensis* (Lam.) Müll.Arg. (9 URs, as commercial product) was mentioned most often against endoparasites. Other ingredients used for ectoparasites were *Laurus nobilis* L. (2 URs), *Malus domestica* Borkh. (2 URs) as well as essential oils of *Citrus x limon* (L.) Osbeck (2 URs) and of *Melaleuca alternifolia* (Maiden & Betche) Cheel (2 URs).

Hypericum perforatum L. (4 URs) was the most frequently mentioned plant in connection with mastitis. *Armoracia rusticana* G.Gaertn., B.Mey. & Scherb., *Salvia officinalis* L. and *Picea abies* (L.) H.Karst. (each 4 URs) were most frequently mentioned to treat respiratory problems. *Arnica montana* L. (5 URs) and *Symphytum officinale* L. (5 URs) were most often mentioned for diseases of the musculoskeletal system.

3.3. Route of administration

More than half of the URs referred to oral administration (260 URs, 58%). The majority of them were in context of gastrointestinal problems, to support the metabolic function, for general strengthening and to reduce internal parasites (222 URs in total).

External administration was mentioned for 172 URs (38%). Of these, 100 URs were for the treatment of altered and sore skin. The majority were ointments, oils and tinctures for disinfection and to accelerate the healing progress. 9 URs included bath and cleansing, most often used in cases of flexurial eczema in dairy cows. Furthermore, the fresh, plant sap of *Chelidonium majus* L. was mentioned in 6 URs for the local treatment of warts. The remaining external administrations (72 URs) were on intact skin, mostly to treat inflammations of joints, swellings or mastitis.

16 URs (4%) were for other administration. Thereof, 11 URs were treatments of the housing environment like in the stable (six of them were for prevention of parasites, and five were for inhalation and fumigations because of respiratory problems).
4 URs (*Hypericum perforatum* L. and *Secale cereale* L. combined with vinegar) were used intrauterinely as lube replacement, particularly in reports more than ten years ago. *Mentha x piperita* L. (1 UR) was used nasally for calves after a hard and long birth.

3.4. Calculation of the dosage

For 193 URs (43%) it was not possible to determine the amount of plant material accurately, or it was methodically not provided for (treatment of environment or oral application ad libitum). A determination of dosages was possible for more than half of the URs (255 URs, 57%), which can be seen in Tables 6 and 7 (Appendix 3). Table 6 shows the daily dosage and the respective animal groups for those plant species that were reported in at least three HSHRs. Table 7 shows the plant material used per 100g of the finished product. This is listed according to the respective extraction process. Where available, the two tables do not only show the data given by the DPs in the present study but also the dosages that were given in the veterinary and human medical literature.

For 195 URs, the original plant material or the ready-to-use bought HSHR was weighed on site. For 26 URs the drug was taken from the farmers out of the reference drug collection and for 34 URs the interviewer determined the weight based on equivalent plant material according to the description of the farmers.

Of the 255 URs with determined dosages, 171 were for internal application and 84 for external treatment.

3.5. Frequency and last use

Around two thirds of the URs were used at least once during the last five years (304 URs, 68%), and the majority of these 304 URs were employed by the respondents during the last year (223 URs, 73%) (Figure 4).

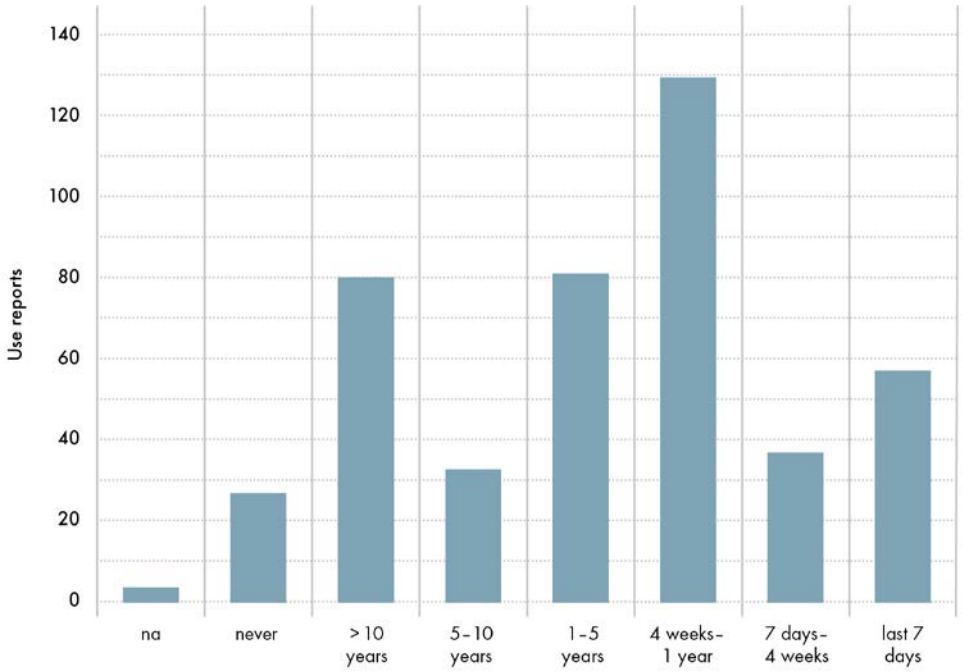


Figure 4: Last time of use for 448 Use Reports (UR) - mentioned by livestock holders in Bavaria at the time of the interview.

About two thirds of the 304 URs were used more than ten times during the last five years (204 URs, 67%) (Figure 5).

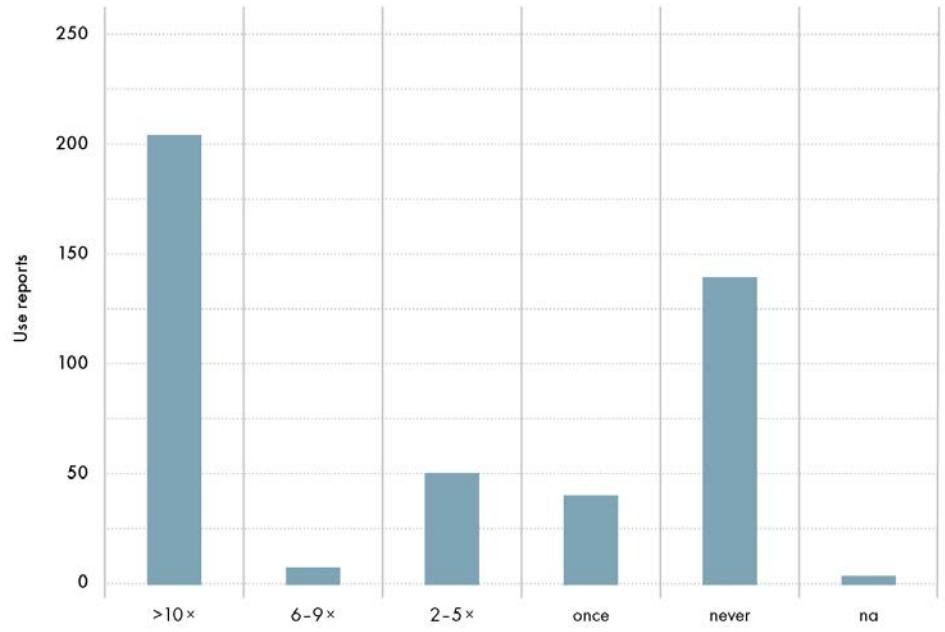


Figure 5: Frequency of use in the last 5 years for the 448 URs mentioned for this period of time by livestock holders in Bavaria at the time of the interview.

3.6. Sources of knowledge

In this study, the sources of knowledge could be determined for every single HSHR recipe (Figure 6).

The sources came from several groups. Transmitted knowledge from family and friends was mentioned most often (for 145 HSHRs, 42%), followed by knowledge from books (for 61 HSHRs, 17%).

It was also possible to collect information on all the origins of knowledge of the URs (Figure 6a). Transmitted knowledge from family and friends was mentioned most often as well (for 196 URs, 44%). Books were the source for 72 URs (16%), followed by courses for 66 URs (15%).

Most HSHRs and URs had the same source of knowledge (368 URs, 82%), but in 80 cases (Figure 6b) the origin of the knowledge differed between the indication and the specific recipe.

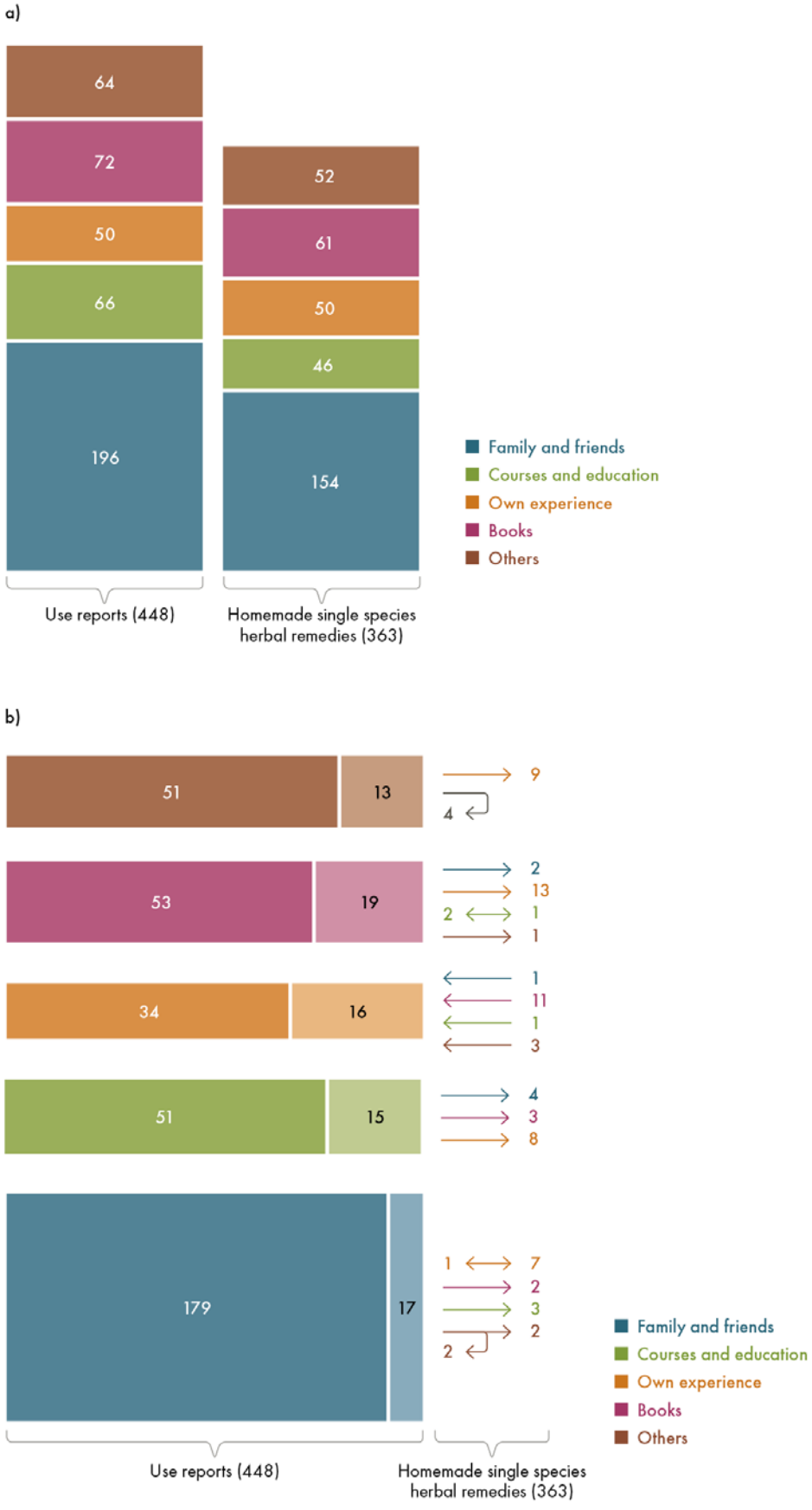


Figure 6: Sources of knowledge, shown for the homemade single species herbal remedy reports

(HSHRs = detailed knowledge about the preparation process of the respective plant to get the exact final formulation) and the use reports (URs, knowledge about the indication, the animal species and the route of application for the specific plant species and plant part).
(others = local veterinary practitioner, n.a., internet, TV, inspiration from commercial products, advertisement, magazines).

a) overall results

b) results differentiated between UR for which HSHR and UR have the same source of knowledge and UR with differences between the source of knowledge regarding the UR and the HSHR.
On the left-hand side the 448 URs are shown. It can be seen proportionately per source of knowledge for how many URs the source of knowledge differed between the HSHR and the UR (fainter coloration). The right-hand side shows the respective different HSHR source of knowledge.
The directions of the arrows indicate whether (i) there was first knowledge about the particular plant species and the indication (arrow from the left to the right side) (URs) and based on that knowledge whether it was searched for valuable formulation, or whether (ii) the formulation (HSHRs) was first known and later adapted for another indication or animal species based on another source of knowledge (arrow from the right side to the left side). The returning arrow shows change within the same category.

3.7. Degree of satisfaction

For 341 URs it was possible to evaluate the degree of satisfaction with the help of a visual analog scale (VAS). Overall, the farmers were satisfied with the efficacy of their plant preparations (83.0 of a maximum of 100 mm) (Figure 7).

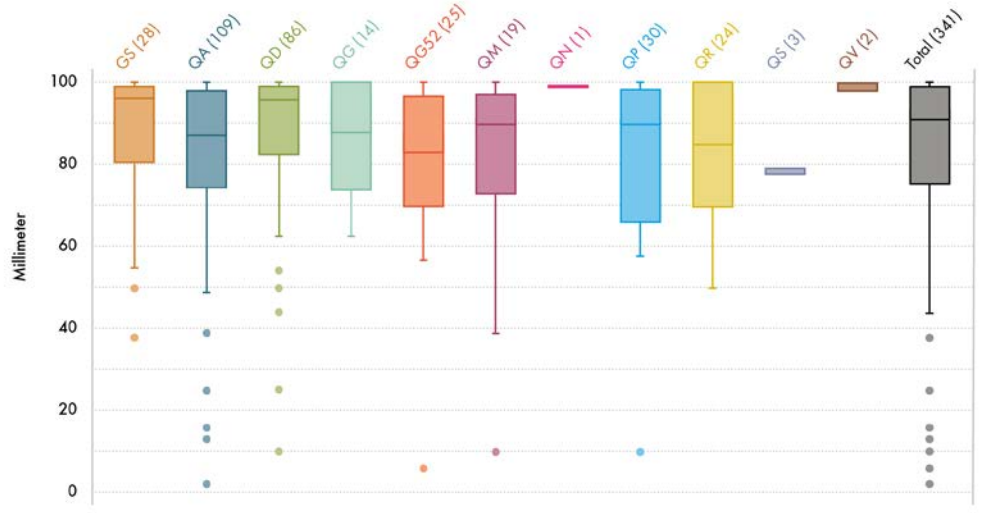


Figure 7: Degree of satisfaction of DPs with the treatment outcome based on a Visual Analog Scale (VAS) depending on the category of use, mean value and standard deviation of the VAS are presented. Categories of use are according to veterinary therapeutic indications of the Anatomical Therapeutic Chemical Classification system for veterinary medicinal products (ATCvet codes): GS = General strengthening; QA = Alimentary tract and metabolism; QD = Dermatologicals; QG = Genito urinary system and sex hormones; QG52 = Products for teats and udder; QM = Musculoskeletal system; QN = Nervous system, QP = Antiparasitic products, insecticides and repellents; QR = Respiratory system; QS = Sensory organs; QV = Varia. An analysis of variances (ANOVA) for all groups that had more than three ratings showed that the differences between the groups were not statistically significant, F (7,327) = 1. 36, p = 0.22.

4. Historical regional literature

Altogether, 332 use reports (URs), that included one single plant species were found in the two local historical textbooks (221 URs of the textbook from ZIPPERLEN (1959) and 111 URs of the book from MANGOLD and REICHERTER (1907)). Of these, 39 URs were combined with further natural ingredients like for example, honey, wine, schnapps, animal charcoal or Glauber's salt. For the other 293 URs only one single plant species was described as ingredient (Appendix 6).

The 332 URs referred to 98 plant species that belong to 46 botanical families. Species of the family Asteraceae were mentioned most often (62 URs), followed by plants of the families Fagaceae (24 URs), Linaceae (23 URs), Lamiaceae (19 URs) and Apiaceae (18 URs).

The most often mentioned plant species were: *Quercus robur* L. (24 URs), *Matricaria recutita* L. (24 URs) and *Linum usitatissimum* L. (23 URs).

For more than half of the URs (57%), the corresponding remedy was prepared with an aqueous extraction process. For 5 URs the water was used at room temperature, for 183 URs the water was heated. Of these, 93 were prepared as an infusion, like for example "Kamillentee" (camomile tea, *Matricaria recutita* L., 24 URs) or "Pfefferminztee" (peppermint tea, *Mentha x piperita* L., 10 URs). 90 preparations were decoctions, mostly named "Eichenrindenabkochung/ Eichenrindensud" (oak bark decoction, *Quercus robur* L., 18 URs). Other extraction procedures (altogether 12%) were with fat or cream (15 URs), alcohol (15 URs), honey, salt, vinegar (each 2 URs) and three were without a specification. 103 URs (31%) were directly applied without any extraction procedure.

The largest number of URs were reported for the treatment of gastrointestinal disorders and metabolic dysfunction (QA 132 URs, 40%) (Figure 3), followed by the categories of use for dermatological problems including the treatment of skin alterations and sores (QD, 43 URs, 13%) and diseases of musculoskeletal system (QM, 36 URs, 11%).

Horses were the species with the most mentioned treatments (101 URs, 30%) and one quarter was for cattle (84 URs, 25%). For 41 URs (12%) there was no exact information on the species to be treated, but explanations like: "for the young stock" or "in general as antidot after diverse intoxications". Other species mentioned were

sheep, goats, pigs, hens, rabbits and dogs.

More than two thirds of the URs were for internal administration (231 URs, 70%) and nearly one third was for external applications (101 URs, 30%). The external applications were as well on intact skin (43 URs) as on altered or sore skin (58 URs). The internal administrations were predominantly oral (222 URs) and to a lesser extent for inhalative, rectal or intravaginal/intrauterine application.

Based on the dosage data given in the books, it was possible to determine a recommended daily dosage related to metabolic body weight for 55 URs of the 231 URs for internal administration. For the other 175 URs, there were only vague dosage recommendations such as “one handful to the feed” or “one to two bottles of strong decoction” or no information on the amount at all.

Furthermore, an exact concentration in g dry plant equivalent per 100g final HSHR for external application was given for 17 URs of the 101 external URs.

V. DISCUSSION

1. Research method of the study

Farmers from all seven districts of Bavaria participated in the present study. The majority came from the southern districts (60 DPs, compared to 17 DPs from the North). This may result from the fact that there are more farms with animal husbandry in the South (STMELF, 2018). Bavaria is the largest of the 16 states in Germany with 70,542 km² and significantly larger than the German-speaking areas explored so far: The research areas of the Swiss studies amounted to about 3,650 km² each (SCHMID et al., 2012; DISLER et al., 2014; BISCHOFF et al., 2016; STATISTISCHE ÄMTER DES BUNDES UND DER LÄNDER, 2018; MERTENAT et al., 2019). An uneven distribution of participants over different regions also occurred in Swiss studies (BISCHOFF et al., 2016). This probably arises from the methods of free callings, snowball sampling and purposive sampling, all of which are commonly used in ethnoveterinary research (VOGL et al., 2016).

In order to mitigate possible sampling biases, the present study used all three of these methods. One third of the DPs were recruited via the newspaper "Bayerisches landwirtschaftliches Wochenblatt", that is published for all kinds of farms in every district. Another third of the DPs was recruited via various ways of public advertisement and a snowball-sampling method, and one third participated after becoming aware of the study via calls in dairy newsletters. Both, active farmers and retired persons were reached. A majority of the participants kept cattle, as do more than half of the animal-holding farms in Bavaria (BAYERISCHES LANDESAMT FÜR STATISTIK, 2016, 2018). Animals that are normally treated as a whole herd or flock, like pigs and poultry, are generally less frequently mentioned in European ethnoveterinary studies compared to other animal species such as cattle (MAYER et al., 2017).

Organic farms were represented more than in the general population. 10.8% of the Bavarian farms are organic (BAYERISCHES STAATSMINISTERIUM FÜR ERNÄHRUNG LANDWIRTSCHAFT UND FORSTEN, 2016). 31.2% of the DPs in this study (24 of 77) were organic farmers. A focus on organic farms was to be expected because these farms shall prefer herbal remedies for the prevention and

therapy of animal diseases due to the VO (EU) 2018/848,1.5.2.3. (2018). Many organic farmers are highly motivated to prepare their own herbal remedies. The percentage of organic farms participating in this study was comparable with that in earlier surveys from Switzerland (SCHMID et al., 2012; DISLER et al., 2014).

This was the first study that collected detailed ethnoveterinary information from farmers about their knowledge about the use of homemade herbal remedies in an EU country north of the Alps. It included both farmers' contemporary knowledge as well as systematic analysis of local historical literature (MANGOLD and REICHERTER, 1907; ZIPPERLEN, 1959) on herbal medicine for animals. The years of the first editions were 1867 for "Zipperlen: Illustierter Hausthierarzt" and 1885 for "Strebel & Reicherter: Neues, illustriertes Haus- Tierarzneibuch". ZIPPERLEN was well known by Bavarian pharmacists and veterinarians of the early 20th century (REUTHER, 2006). Additionally, two DPs recommended the textbook of ZIPPERLEN and one DP showed the historical book of MANGOLD & REICHERTER. Altogether, the DPs showed various books about medicinal plants. They used some of these actively, and possessed some of them through inheritance. The books were mostly for phytotherapy in human medicine (two thirds) but nearly a third showed current literature for animal owners. It is necessary to compare historical sources with the results from contemporary farmers' applications to get a systematic overview, especially about the dosages of the HSHRs. This comparison is also used in human medicine (DAL CERO et al., 2015), but is missing in studies of ethnoveterinary medicine so far.

2. Scope

Within the scope of the study, knowledge about natural substances, single plant species and mixtures of several plant species were collected. However, the analysis focused on remedies containing a single plant species HSHRs (including composition of one single plant with other natural products) and their URs. The main reason for doing so was that this category represented more than half of the reported recipes (363 HSHRs of 716 HRs, = 51%), and more than half of the reported applications (448 URs of 884 URs, = 51%). This is in line with other ethnoveterinary studies from Africa and Europe, where more than half of the plant prescriptions were single plant applications (VAN DER MERWE et al., 2001; SCHMID et al., 2012; BARTHA et al., 2015). In the two regional historical

textbooks (MANGOLD and REICHERTER, 1907; ZIPPERLEN, 1959), the predominant part was also the description of applications with single plants. This presumably corresponds more to our Western analytical way of thinking. By contrast, complex mixtures are more common in Chinese traditional herbal medicine (LEE, 2000). Plants are already a complex mixture of many substances. They have been explored to a certain extent through research projects and can be found for the respective plant species for example in the plant monographs for human medicine (EUROPEAN COMMISSION, 1994; ESCOP MONOGRAPHS, 2003, 2009; ESCOP MONOGRAPHS ONLINE, 2021; HMPC MONOGRAPHS, 2021). The ESCOP monographs focus, with the exception of a few entries, on single plants as the toxicological evidence for mixtures is scarce so far. Studies of the interactions in mixtures containing numerous plant species, in which each plant itself already represents a mixture, are rare and probably difficult to carry out (HE et al., 2010). The user can assume an expected mode of action based on recognized medicinal uses as described. In addition, the acceptance of the application on the part of the animal may decrease if too bitter-tasting plants are added to a tea or mixture (NADIG, 2010).

3. Overall aspects of the study

3.1. Origin of the plant material

Interestingly, but in accordance with Swiss and an Eastern-European studies (DISLER et al., 2014; SÕUKAND et al., 2017; STUCKI et al., 2019), the herbal components were bought or gifted for nearly half of the HSHRs (167 HSHR, 46%), including 37 different commercial products (for 56 HSHRs, 15%). The commercial products consisted on the one hand of non-regional plants such as *Mallotus philippinensis* (Lam.) Müll.Arg., *Ricinus communis* L. or *Melaleuca alternifolia* (Maiden & Betche) Cheel. On the other hand, there were ready-made oils and tinctures from the pharmacy, human preparations from the drugstore and some products specifically designed for animals (namely: Stullmisan® vet. Pulver, Durchfallpulver Dr. Schaette, CAI-PAN®mint, XXTerra® Salbe and Sprüh-Lacta-Dipp® Dr. Schaette). Purchased herbal products were also mentioned with similar frequency in the Swiss studies (DISLER et al., 2014; STUCKI et al., 2019), as well as in Eastern Europe, where these store-bought products were merged to the group of cultivated plants (SÕUKAND et al., 2017).

This shows a great interest of farmers in using ready-made, user-friendly herbal preparations that are safe in terms of their ingredients. Considering the growing farm sizes and the ubiquitous lack of time, such products are a practical option for the use of herbal preparations. However, only a few are available as far, especially for livestock.

3.2. Source of knowledge

Nearly half of the URs (196 of 448) had their knowledge from family and friends (Figure 6.1). This shows that oral transmission from generation to generation is still the most common way of spreading ethnoveterinary knowledge in Bavaria. This parameter has not been assessed in ethnopharmacology studies in detail so far. The general findings of the present study are consistent with those from other regions around the world (CRELLIN, 2008; SRI BALAJI and VIKRAMA CHAKRAVARTHI, 2010; STUCKI et al., 2019).

The second most common Bavarian source of knowledge was books (72 URs, mainly recent books on human phytotherapy) and the third most common was courses (66 URs). Courses were mentioned in the framework of agricultural education and training, and as specific herbal courses for human and veterinary medicine. In total 28 of the 77 DPs have participated in such a course in the past. Classical recipes for the external application of *Calendula officinalis* L. as a tincture or ointment, as well as the preparation of Moro's carrot soup from *Daucus carota* L. for the treatment of diarrhea calves were taught most frequently via courses. In Swiss ethnoveterinary studies, courses were the source of knowledge with a higher percentage (12-26%) than books (3-26%) (SCHMID et al., 2012; DISLER et al., 2014; MAYER et al., 2014; STUCKI et al., 2019).

50 URs were created from own experience. Modern sources of knowledge like the internet, magazines or advertisement were mentioned for only 28 of the 448 URs. A further 24 URs were recommended by the local veterinarian. The high interest of farmers in the education about medicinal plants and the willingness to gather knowledge from various print sources shows that they are strongly motivated to know and use herbal remedies.

A new aspect compared to former ethnoveterinary studies was the differentiation between the sources of knowledge of the HSHRs and URs. The source of knowledge for the HSHRs was defined as the detailed knowledge about the used

plant part and the preparation process to obtain the final product used. Knowledge for the URs means that the farmers knew about the indication of the plant species, the animal species and the administration.

It was found that the source of knowledge of the HSHRs and the URs was identical for 368 URs (82%). However, for 80 URs (18%) the source of knowledge differed between the HSHRs and the URs (Figure 6.2). Knowledge from family and friends was the least likely to have different sources of knowledge (only in 17 of 196 URs, 9%). This knowledge has usually been collected and passed on for many generations, which could indicate continuity and reliability.

The breakdown by category of the 80 mismatched sources of knowledges differs considerably from that of the 363 HSHRs and 448 URs in general.

Usually the DPs mentioned the knowledge of the plant species in connection with an animal and an indication (UR) as inspiration to detect a reasonable manufacturing process for an applicable formulation (HSHR). In most of these cases they experimented themselves (source of knowledge of the HSHR was “own experience”). On the other hand, well-known HSHRs based on book-knowledge were transferred to an ethnoveterinary use, but again based on own experience (for example the DPs knew the HSHR from books for indigestion problems of their own children and translated it to URs in calves).

It can be seen that all sources of knowledge influence each other in some way and that ethnoveterinary knowledge shows a dynamic cycle, a fact that is well known from previous ethnobotanical and ethnomedical studies (LEONTI, 2011). As in the past the use of medicinal plants in humans and animals is not fixed and always comprises a part learned from parents or ancestors and a part newly acquired by oneself (WALKENHORST, 2019).

With regard to the degree of satisfaction, for 72 of the 80 URs which differed in their source of knowledge, a VAS was obtained. The average value of satisfaction (86 mm) was similar to the satisfaction for the URs in general (83 mm). According to this, farmers trust traditional empirical knowledge but it is not fundamentally rigid. The users are looking for individual needs and solutions, which is common in medical practice and prophylaxis. This has evolved for centuries (AKABWAI et al., 1997; WANZALA et al., 2005), still does today and probably will in the future.

3.3. Commonness of medicinal plants in German speaking alpine areas

There was a high degree of agreement between the plant species mentioned in the neighboring study regions in Austria, Switzerland and Bavaria. In total, 65% (31 of 48) of the plant species mentioned in Austrian and 48% (73 of 151) of the plant species mentioned in Switzerland were also mentioned in Bavaria for ethnoveterinary use.

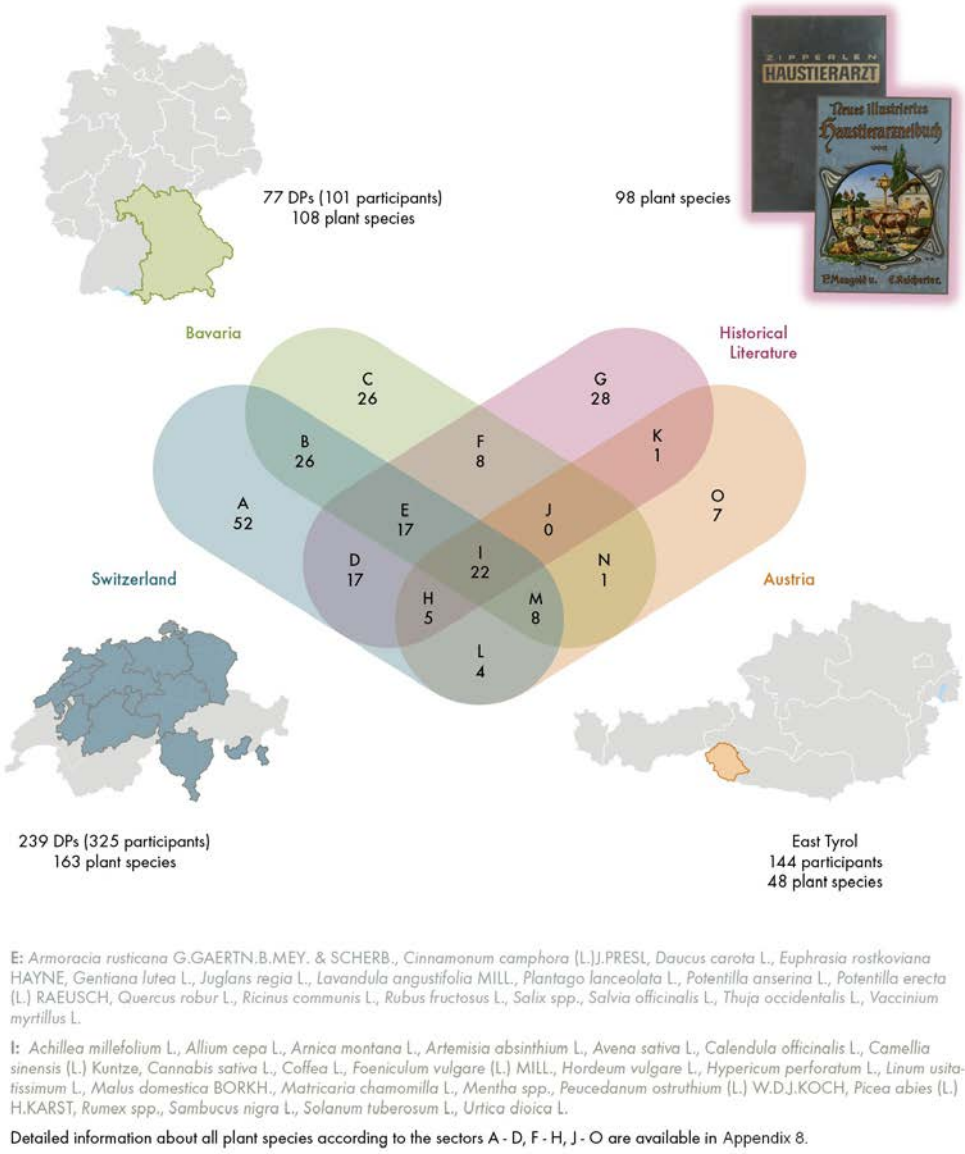


Figure 8: Plant species reported for ethnoveterinary use by the 77 dialogue partners (DPs) and two local historical textbooks, (ZIPPERLEN, 1959) and (MANGOLD and REICHERTER, 1907), in the present study region (Bavaria, Germany) compared to Swiss data (BISCHOFF et al., 2016; DISLER et al., 2014; MAYER et al., 2014; MERTENAT et al., 2019; SCHMID et al., 2012; STUCKI et al.,2019) and Austrian data (VOGL et al., 2016). The list on the bottom shows plant species that were reported in the present Bavarian study and in both other regions or one other region plus a historical textbook (= areas E and I). All plant species are listed in Appendix 8. Image sources: Wikimedia Commons: Germany_location_map.svg (top left), Austria_location_map.svg (bottom right), FiBL Switzerland (bottom left).

Furthermore, nearly half of the plant species of the Bavarian historical literature (48%) were also mentioned by the Bavarian DPs. Taken together, the DPs from all three regions mentioned about two thirds (68%) of the plant species that appeared in the Bavarian historical literature. This documents the commonness and traditionality of a wide range of plants that are used in livestock for prophylactic and therapeutic purposes.

Overall, there is a large overlap of plant species when comparing Bavaria with the two neighboring German-speaking countries. This is still the case when comparing the current study with those from Eastern Europe (BARTHA et al., 2015; SUBAREVIC et al., 2015). With regard to the further development of European veterinary herbal medicine, the plant species that were mentioned and used by several independent sources should be taken into focus. Taking Bavaria as an example, the 14 plant species which were present in more than five URs and were also mentioned by Swiss and Austrian DPs are of particular interest, namely: *Arnica montana* L., *Artemisia absinthium* L., *Avena sativa* L., *Calendula officinalis* L., *Camellia sinensis* (L.) Kuntze, *Coffea* L., *Hypericum perforatum* L., *Linum usitatissimum* L., *Matricaria recutita* L., *Peucedanum ostruthium* (L.)W.D.J.Koch, *Picea abies* (L.) H.Karst., *Rumex spp*., *Sambucus nigra* L., *Urtica dioica* L..

Compared to the data from Switzerland (SCHMID et al., 2012; DISLER et al., 2014; MAYER et al., 2014; BISCHOFF et al., 2016; MERTENAT et al., 2019; STUCKI et al., 2019) and Austria (VOGL et al., 2016), 34 plant species were named for the first time in Bavaria. However, these plants represented only few URs. For *Mallotus philippinensis* (Lam.) Müll.Arg. 11 URs were given. *Drosera anglica* Huds., *Onobrychis viciifolia* Scop., *Panicum miliaceum* L., *Alpinia officinarum* Hance and *Tussilago farfara* L. were mentioned twice.

For the 28 other plant species only one UR was reported (Appendix 7 & 8). The fact that these area-specific plant species mostly represent only a few URs underlines the findings of MERTENAT et al. (2019) that such unusual plant species were rarely used.

3.4. Drug dosage

An ethnoveterinary-based dosage was estimated for 19 of the most often reported plant species (for which at least 3 URs are mentioned) in oral use were obtained (Table 6, Appendix 3), and for seven plant species an externally used concentration

in the final product could be estimated (Table 7, Appendix 3). For *Calendula officinalis* L. both kinds of dosages could be estimated. There was a wide range of dosages and concentrations reported. An explanation therefore might be the fact that most herbal drugs have a large therapeutic index, which describes the range of dosage between first therapeutic effects and first toxic effects (DISLER et al., 2014).

In contrast to surveys conducted in Austria (VOGL et al., 2016) and Switzerland (SCHMID et al., 2012; DISLER et al., 2014; MAYER et al., 2014; BISCHOFF et al., 2016; MERTENAT et al., 2019; STUCKI et al., 2019), an ethnoveterinary-based median oral daily dosage for *Peucedanum ostruthium* (L.) W.D.J.Koch and *Calendula officinalis* L. could be determined for the first time. The median dosages were compared to data of studies from Switzerland (SCHMID et al., 2012; DISLER et al., 2014; BISCHOFF et al., 2016; MAYER et al., 2017; MERTENAT et al., 2019; STUCKI et al., 2019), the historical textbooks of ZIPPERLEN (1959), MANGOLD & REICHERTER (1907) and FRÖHNER (1900), present veterinary literature (REICHLING et al., 2016b; BRENDIECK-WORM and MELZIG, 2018) and present human phytomedicine (ESCOP MONOGRAPHS, 2003, 2009; WICHTL, 2009; WENIGMANN, 2017). The combination of these different sources might be a sound base for general dosage recommendations in European veterinary herbal medicine.

The dosages for most of the plant species were in the same range as in other sources. For some, however, there were notable differences:

Bavarian DPs used lower dosages than in the historical literature and in Switzerland for three plant species (*Coffea* L., *Quercus robur* L. and *Allium sativum* L.). Also dosed lower than in the literature were *Daucus carota* L., *Artemisia absinthium* L., *Picea abies* (L.) H.Karst., *Plantago lancelota* L. and *Taraxacum officinale* F.H.Wigg.. But the range of these dosages was similar to the outcomes from Switzerland.

Matricaria recutia L. and *Nigella sativa* L. were used at substantially higher dosages than elsewhere.

3.5. Most often reported plant species

The most often reported plant species was *Calendula officinalis* L.. It was used for 29 HSHRs and reported for a total of 40 URs (as can be seen in Appendix 7). The

petals and flowers (*Calendulae flos*), which are especially rich in triterpenoids, flavonoids, and carotenoids (GIVOL et al., 2019), were most frequently used for skin afflictions and sores (QD, 34 URs). Here, ointments or tinctures were used topically. These uses correspond with those documented in surveys conducted in Switzerland and in Austria (GRABOWSKI, 2010; SCHMID et al., 2012; DISLER et al., 2014). There were also two reports each of its use for mastitis (QG52) and ringworm (QP). For internal use in metabolic disorders, such as calf diarrhea or slowly developing and sick calves, it was reported four times as an infusion and once as a tincture preparation. Use in the treatment of wounds and mild inflammation of the skin and mucous membrane has been described in veterinary medicine (REICHLING et al., 2016b; BRENDIECK-WORM and MELZIG, 2018). The beneficial effect of these uses are supported by numerous findings from pharmacological *in vitro* and *in vivo* studies (FRONZA et al., 2009; SHAFEIE et al., 2015; GIVOL et al., 2019). Used internally, *Calendula officinalis* L. shows a cell immunomodulation against *Salmonella enteritidis* in broilers (BARBOUR et al., 2004) and positive effects on the intestinal mucosa in canine animal models (MEHRABANI et al., 2011). In *in vitro* studies, the flavonoid fraction isolated from the flowers showed an inhibitory effect on *S. aureus*, *Sarcina lutea*, *E. coli*, *Klebsiella pneumonia* and *Candida monosa* (RIOS et al., 1987; ARORA et al., 2013). Current clinical studies for internal use in humans and animals would be desirable to assess the traditional use for digestive problems in general as well as in calves.

The second most frequently used plant species by Bavarian farmers was *Linum usitatissimum* L**.** (21 HSHRs for 31 URs), commonly known as flaxseed**.** Flaxseeds were either used directly, or as decoctions. They were mainly administered orally against gastrointestinal disorders (QA, 20 URs,), for general strengthening (GS, 6 URs), dermatological issues (4 URs) and in one case to treat the musculo-skeletal system. Flaxseed is known worldwide for its medicinal use in addition to its use as food and feed (BASCH et al., 2007; GOYAL et al., 2014). Its seeds contains large amount of α-linolenic acid, also known as omega-3-fatty acid, and mucilaginous polysaccharides which produce soothing, protective layer on mucous membranes (TEUSCHER E, 2009; ESCOP, 2017).

The farmers in this study administered the linseed purely, swollen or as a decoction. In the case of the decoction, a viscous mucilage was strained which was then given

orally to goats and cattle for various digestive problems. This flaxseed slim was especially used for mild colic and flatulence, diarrhea, constipation or additionally for rumen inertia. In veterinary medicine, linseeds are used as a mild laxative and to relieve irritation in gastritis (BRENDIECK-WORM and MELZIG, 2018). The same indications are used in human medicine (TEUSCHER E, 2009) and are described in various clinical studies (DAHL et al., 2005; PALLA and GILANI, 2015). The dosages administered by the farmers interviewed in our study were higher than those reported for human medicine (ESCOP, 2017) or recommended dosages in veterinary literature (REICHLING et al., 2016b; BRENDIECK-WORM and MELZIG, 2018) but on average lower than in the Swiss studies (SCHMID et al., 2012; DISLER et al., 2014; BISCHOFF et al., 2016; MAYER et al., 2017; MERTENAT et al., 2019; STUCKI et al., 2019).

3.6. Promising plant species

It is necessary to use, develop and extend the tradition of book knowledge and experience reports to facilitate the discussion about a simplified registration for traditional herbal veterinary medicinal products. For this purpose, there are two expressive examples of “new” plant species for livestock holding in this Bavarian study:

The glands/hair of the fruit of *Mallotus philippinensis* (Lam.) Müll.Arg. (Kamala), are rich in phenolic compounds, especially the red-yellow dye rottlerin, laxative resins, tannins and cardenolides (GANGWAR et al., 2014). The drug was mentioned 11 times by our DPs as a gastrointestinal deworming agent with 0.171 $g/kg^{0.75}$ median daily dosage for cattle to 0.55 $g/kg^{0.75}$ for dogs. The DPs used the imported ready-to use product Kamala, a powder made out of the fruit hair. So far, it has not been mentioned in other recent European ethnoveterinary studies. However, apparently it is not a fad in Europe, as it was also mentioned in the analysis of historical work by REUTHER (2006) and in the textbook of ZIPPERLEN (1959) in similar dosages. In India, its medicinal use for humans and animals has a long tradition. In Europe, the drug has been considered as obsolete in the past decades. However, recent *in vivo* and *in vitro* studies show multiple effects and potential:

According to GUPTA et al. (1984), the resin isolated from an ethanolic extract of capsules had lethal effects on 78% of tapeworms in albino rats when administered at an oral dosage of 120 mg/kg. In a further *in vitro* study, 20 mg/mL of a methanolic

glandular hair extract eliminated 93% of *Echinococcus granulosus* after 10 min and 99% after 60 min of exposure (GANGWAR et al., 2013). These results are very promising, but the dosage used is rather high for practical, therapeutic use, especially compared to the dosages reported in the present work.

Furthermore, crude extracts of *Mallotus philippinensis* (Lam.) Müll.Arg. exhibited significant antimicrobial activity against pathogenic bacteria (GANGWAR et al., 2014). In particular, it showed potent activities against a panel of clinically relevant Gram-positive bacteria, including methicillin-resistant *Staphylococcus aureus* (MRSA) (OYEDEMI et al., 2016). For future research, it is important to identify the compounds responsible for the activity. So far, Rottlerin and Mallotophilippens have emerged as potentially active compounds (KUMAR et al., 2021). Therefore, further *in vitro* and *in vivo* studies are necessary.

Peucedanum ostruthium (L.)W.D.J.Koch grows mainly at altitudes above 1,200 meters and is native to the Alpine region of Bavaria (PAROLLY and ROHWER, 2016). Essential oils, tannins and coumarins are the main active substances (ZWIRCHMAYR et al., 2020). The coumarin ostruthin showed anti-mycobacterial activity *in vitro* (SCHINKOVITZ et al., 2003).

A median daily dosage for *Peucedanum ostrithium* (L.) W.D.J.Koch could be determined for the first time in a contemporary ethnoveterinary study. The DPs prepared it as tea, tinctures or administered the herb orally for a wide range of indications (respiratory, urogenital tract, general strengthening and various) with a median daily dosage of 0.007 $g/kg^{0.75}$. Compared to the recommended daily dosage in the historical literature (0.194 $g/kg^{0.75}$ - 0.389 $g/kg^{0.75}$), the interviewed farmers administered the dosage lower. The reason given for sparing use was that it was tedious to prepare the roots and that they had been taught by ancestors that they were very valuable.

In ZIPPERLEN (1959) *Peucedanum ostruthium* (L.) W.D.J.Koch was used as a herbal tea against „malignant catarrhal fever". The study of HIERMANN and SCHANTL (1998) proved that the coumarins in the roots have antiphlogistic and antipyretic effects in rat models as they show dual inhibitors of COX and 5-LOX activities. Anti-inflammatory and immunomodulatory activities were corroborated by further *in vitro* and *in vivo* studies (ZIMECKI et al., 2009; JARZĄB et al., 2017).

3.7. Example applications for the most common indications

The most frequently mentioned diseases in this study are all found in the field of bovine medicine, as cattle were the most frequently reported animal species. The following subsections discuss some important examples.

3.7.1. Calf diarrhea

Gastrointestinal and metabolic disorders were the most often mentioned indication area (QA). Calf diarrhoea of different genesis was by far the most frequent reason given for the use of medicinal plant preparations (91 URs). Preparations with *Daucus carota* L. or *Linum usitatissimum* L., as well as decoctions of *Quercus robur* L., and infusions of *Camellia sinensis* (L.) Kuntze were reported more than nine times. *Quercus robur* L. has largely astringent and anti-inflammatory properties due to its high tannin content (REICHLING et al., 2016a) which leads to an antidiarrheal effect. According to the systematic review about medicinal plants for piglets and calves (AYRLE et al., 2016), *Camellia sinensis* (L.) Kuntze bears a potential for treatment of diarrhea and for stimulation of the immune system. The use of aqueous preparations of *Daucus carota* L. has proven successful in human pediatrics (MORO, 1908). In memory of the pediatrician Ernst Moro, one of the European pioneer investigators in pediatrics, it is now commonly called Moro's carrot soup. The long-cooked carrot pulp contains acidic oligosaccharides that inhibit the adhesion of various intestinal pathogens to HEp-2 cells and intestinal epithelial cells *in vitro* (KASTNER et al., 2002).

All of these applications described by the participating farmers, regardless of their specific ingredients, have in common that they provide additional hydration of the calves, even if pure tea and soup preparations certainly cannot compensate for serious metabolic acidosis. According to the farmers, these preparations were mostly accepted gladly by the calves. When asked about additional treatments, 36 farmers indicated that increased care and nursing for the calf and, depending on the weather, the use of calf blankets were practiced on their farms. A further 13 farmers indicated that the veterinarian sometimes had to be called in cases of calf diarrhea, especially when the calves show a body temperature above 40 °C. On the one hand, this indicates good monitoring of the calves by the farmers. On the other hand, it is generally assumed that an improved human-animal relationship contributes to the promotion of cow and calf welfare (WAIBLINGER et al., 2002).

3.7.2. Mastitis in dairy cows

Of the 448 URs, 31 were named for (supportive) treatment in acute and chronic mastitis. The majority thereof (29 URs) were described for topical administration. This stands in contrast to the findings of the review of FUCHS and GLARDON (2021) where most administrations were peroral or intramammary. In the present Bavarian study, twice-daily rubbing of the udder after milking with arnica tincture, St John's Wort oil (which is the common name for *Hypericum perforatum* L.) or camphor ointment was described most often. *Arnica montana* flowers contain, among others, flavonoids, sesquiterpenes and essential oil (PAßREITER, 1992; KRIPLANI et al., 2017). Especially the sesquiterpene lactones are reported as good anti-inflammatory and cytotoxic agents (PETROVA et al., 2012). Camphor is popularly known for its hyperemising effect (KIETZMANN et al., 2014). This is in accordance with the use described in the present study, mainly for udder oedema. St John's Wort extracts show promising antimicrobial effectiveness *in vitro* against subclinical cow mastitis pathogens such as *S. aureus* (OKMEN and BALPINAR, 2017). However, there is a lack of further studies, despite its traditional reputation for this indication. The potential photosensitizing effect when using St John's Wort oil needs to be considered when it is applied perorally in high dosages or topically on larger skin areas because of the Hypericin, which is an ingredient of St John's Wort oil (ESCOP, 2018). The participating farmers were aware of this. It is essential to ensure that no undesirable residues are left in the milk or in the edible tissue when using such homemade herbal remedies. According to Commission Regulation No. 37/2010 (EUROPEAN COMMISION, 2010), these plant species are listed for external use and in the concentration level of a mother tincture without a maximum residue limit.

3.8. Traditional use of toxic plant species

The participating farmers reported mainly external applications for plant species with high toxic potential, so called forte-plants. An exception is one report of a Thuja decoction for Retentio secundinarum, whose last use, though, was more than 10 years ago.

For example, for the treatment of papillomas and fibropapillomas, the topical use of the alkaloid-rich *Chelidonium majus* L. seems to be popular among farmers (6 URs). Mainly the dropping of the fresh milky plant sap directly onto the wart was reported. However, homemade ointment preparations and alcoholic extracts were

also used. Single use reports of the fresh plant sap were also mentioned in the two Swiss studies by MAYER et al. (2017) and MERTENAT et al. (2019), as well as in human medicine (NAWROT et al., 2020). It might be that Chelidonium could also be effective against papillomas, which do not show a tendency to self-heal, as the herb and different extracts show an anti-viral effect *in vitro* (MONAVARI et al., 2012) and *in vivo* in mice (LOZJUK et al., 1996; GERENČER et al., 2006). For this reason clinical trials in humans and animals are necessary. It is a promising candidate.

Likewise, the local use of *Thuja occidentalis* tinctures for papillomatosis was described by the farmers. This therapeutic approach of the Bavarian farmers is in line with the findings of several Indian studies (KAVITHAA et al., 2014; ARCHANA et al., 2019). In those studies, the local use of Thuja shows a healing rate of over 50%. However, it should be considered that in connection with the respective immune system situation of the animal, some papilloma types, especially fibropapillomas on the teats, also show a self-healing tendency (CAMPO et al., 1994).

In addition, an anecdotal description of the application of *Atropa bella-donna* L. to wounds and especially after birth injuries of cows was reported. *Atropa bella-donna* L. shows wound healing effects under laboratory conditions (GÁL et al., 2009). However, there are numerous herbal and chemically synthetic alternatives with a lower toxic potential.

Altogether, the present study found several promising plant species for veterinary use and confirmed treatments that were found in earlier studies in neighboring and more distant regions.

VI. CONCLUSIONS

In Bavaria, homemade remedies mainly based on medicinal plants are still known and actively used by farmers on large and small, organic and conventional farms with a high level of satisfaction. The average satisfaction on a visual-analogue scale was 83 of 100 mm. Regarding the plant species used for ethnoveterinary treatment, there is a broad agreement with the two neighboring countries of Austria and Switzerland and with regional book knowledge. This demonstrates traditionality in ethnoveterinary medicine in Europe. But this knowledge is not solely passed on from generation to generation in a static way, but is dynamically developed by the users. Interestingly, there seems to be a high demand in ready-to-use purchasable products.

The farmers who participated described conscientious use of herbal home remedies. For the 265 URs that were used internally the medicinal plants were predominantly over-the-counter plant species (and parts of them), with low toxic potential, like for example oak bark (*Quercus cortex*) or Camilla flowers (*Matricariae flos*). But the reported use of Kamala powder, which is currently only available on the German market as a coloring agent, should be viewed critically under the current legal situation.

The farmers described that they used homemade herbal remedies to fill the gap between inactivity and the use of chemically synthetic medicines (which would relate to a withdrawal period). Nearly half of the reported URs targeted indications for which the use of antibiotics in livestock is most often needed. These are the treatments of gastrointestinal disorders and metabolic dysfunction (QA, 139 URs), mastitis (QG52, 31 URs) and diseases of the respiratory tract (QR, 28 URs). However, medicinal plants cannot replace antibiotics and other treatments completely. In particular, every animal owner should seek the professional advice of a veterinarian in the case of severe pain, life-threatening emergencies or prolonged illness. But altogether a sensible use of phytotherapeutics by veterinarians and farmers may reduce the need of antibiotics and antiparasitics.

Several plants reported in the present study are interesting candidates for future treatment options to achieve this goal. A balancing of historical and contemporary applications and knowledge, together with phytochemical, *in vitro* and *in vivo* data

facilitates the discussion about a simplified registration for traditional herbal veterinary medicinal products.

VII. SUMMARY

(Ethno-)veterinary relevance:

While the interest in finding medical solutions for the worldwide antibiotics crisis is rising, the dwindling legal possibility of simplified authorization of veterinary herbal medicinal products is causing problems.

Important bases for both the preservation and for the further development of the knowledge base of veterinary herbal medicine are, on the one hand, ethnoveterinary research and, on the other hand, historical written sources on the treatment of farm animals with medicinal plants.

There is only limited systematic ethnoveterinary research in Europe so far, with the exceptions of the Mediterranean region, Switzerland and Austria. In this study, a survey on the ethnoveterinary knowledge of farmers in all seven districts of Bavaria was conducted and two regional historical textbooks were analyzed.

Aim of the study:

This study documented the indigenous veterinary knowledge about livestock in the whole of Bavaria (including local historical book knowledge and a broadly based ethnoveterinary study) to discover opportunities for the future development of European veterinary phytotherapy, and analyzed them both in terms of lawfulness and related to the content.

Material and methods:

77 semi-structured interviews with 101 farmers from different types of farms were conducted in 2018/2019. Detailed information about homemade herbal remedies (plant species, plant part, manufacturing process, source of knowledge) and the corresponding use reports (target animal species, category of use, route of administration, dosage, source of knowledge, frequency of use, last time of use and farmers satisfaction) were collected. To compare the data with the literature, the use reports of two historical textbooks from South Germany were analyzed and compared to the present Bavarian field study.

Results:

A total of 716 homemade remedy reports (HRs) for altogether 884 use reports (URs) were documented in the interviews with the farmers. Thereof, the 363 HRs

that consisted of a single plant species with or without other natural products (HSHRs) were analyzed in more detail. These HSHRs were prepared from 108 plant species belonging to 57 botanical families.

Calendula officinalis L. (from the family of Asteraceae), *Linum usitatissimum* L. (Linaceae) and *Urtica dioica* L. (Urticaceae) were the most often documented species. A total of 484 URs were gathered for the 363 HSHRs. The largest number of URs was for treatments of gastrointestinal disorders and metabolic dysfunctions, followed by skin alterations and sores.

For nearly half of the URs the source of knowledge was family and friends. For 80 URs the source of knowledge was different from that of the corresponding HSHRs. For 68% of the URs farmers mentioned at least one use during the last 5 years.

Half of the plant species that were mentioned in the historical literature were also mentioned in recent URs.

Conclusion*:*

In Bavaria, homemade remedies mainly based on medicinal plants are still known and actively used by farmers with a high level of satisfaction on large and small, organic and conventional farms. In particular, there is a great deal of agreement with studies from neighboring countries to the south and with regional book knowledge. This shows a certain traditionality in ethnoveterinary medicine in Europe. It was also found that this knowledge is not passed on from generation to generation in a purely static way, but is dynamically developed by the users in almost one fifth of the cases. Furthermore, ethnoveterinary research combined with data from historical sources may facilitate the discussion about a simplified registration for traditional herbal veterinary medicinal products.

VIII. ZUSAMMENFASSUNG

Erfassung des Erfahrungswissens in Bayern zur Behandlung von Nutztieren mit Arzneipflanzen und Naturstoffen

(Ethno-) Veterinärmedizinische Relevanz:

Während das Interesse an medizinischen Lösungen für die weltweite Antibiotikakrise steigt, bereitet die schwindende rechtliche Möglichkeit einer vereinfachten Zulassung pflanzlicher Tierarzneimittel Probleme.

Eine wichtige Grundlage, sowohl für den Erhalt, als auch für die Weiterentwicklung der Wissensbasis der veterinärmedizinischen Pflanzenheilkunde, sind einerseits die ethnoveterinärmedizinische Forschung und andererseits die historischen Schriftquellen zur Behandlung von Nutztieren mit Arzneipflanzen.

Bisher gibt es in Europa, mit Ausnahme des Mittelmeerraums, der Schweiz und Österreichs, nur begrenzt systematische ethnoveterinärmedizinische Forschung. Im Rahmen dieser Studie wurde eine Umfrage zum ethnoveterinären Wissen von Landwirt*innen in allen sieben Regierungsbezirken Bayerns durchgeführt, sowie zwei regionalhistorische Lehrbücher analysiert.

Ziel der Studie:

Das Ziel der Studie war es, das bäuerliche, traditionelle veterinärmedizinische Erfahrungswissen in der Nutztierhaltung in ganz Bayern (inklusive zwei lokalhistorischer Bücher und einer breit angelegten ethnoveterinärmedizinischen Studie) zu dokumentieren, um Möglichkeiten für die zukünftige Entwicklung der europäischen veterinärmedizinischen Phytotherapie zu finden - sowohl inhaltlich, als auch im Hinblick auf die Rechtslage.

Material und Methoden:

2018/2019 wurden 77 semistrukturierte Interviews mit 101 Landwirt*innen unterschiedlicher Betriebsformen durchgeführt. Ausführliche Informationen zu selbstgemachten pflanzlichen Hausmitteln (Pflanzenart, Pflanzenteil, Herstellungsverfahren, Wissensquelle) und die entsprechenden Anwendungsberichte (Zieltierart, Anwendungskategorie, Verabreichungsweg, Dosierung, Wissensquelle, Häufigkeit der Anwendung, letzte Nutzung und Zufriedenheit der Landwirt*innen) wurden erhoben. Um die Daten mit der Literatur

zu vergleichen, wurden die Anwendungsberichte aus zwei historischen Lehrbüchern aus Süddeutschland analysiert und mit dieser bayerischen Feldstudie verglichen.

Ergebnisse:

Von den teilnehmenden Landwirt*innen wurden in dieser Studie insgesamt 716 Hausmittelberichte (HRs) für insgesamt 884 Anwendungsberichte (URs) dokumentiert. Davon wurden die 363 HRs, die aus einer einzelnen Pflanzenart mit oder ohne anderen Naturstoffen (HSHRs) bestanden, im Detail ausgewertet. Diese HSHRs wurden aus 108 Pflanzenarten hergestellt, die 57 botanischen Familien angehören.

Calendula officinalis L. (aus der Familie der Asteraceae), *Linum usitatissimum* L. (Linaceae) und *Urtica dioica* L. (Urticaceae) waren die am meisten dokumentierten Arten. Für die 363 HSHRs wurden insgesamt 484 URs gesammelt. Die größte Anzahl von URs betraf die Behandlung von Magen-Darm-Erkrankungen und Stoffwechselstörungen, gefolgt von Hautveränderungen und Wunden.

Für fast die Hälfte der URs waren Familie und Freund*innen die Wissensquelle. Bei 80 URs war die Wissensquelle eine andere als die der entsprechenden HSHRs.

Bei 68 % der URs gaben die Landwirt*innen in den letzten fünf Jahren mindestens eine Verwendung an.
Die Hälfte der Pflanzenarten aus der historischen Literatur wurden auch in den neueren URs erwähnt.

Fazit:

In Bayern sind Hausmittel, die hauptsächlich auf Heilpflanzen basieren unter Landwirt*innen noch gut bekannt und werden auf großen und kleinen, biologisch und konventionell wirtschaftenden Betrieben mit hoher Zufriedenheit aktiv eingesetzt. Insbesondere mit Studien aus den südlichen Nachbarländern und mit regionalem Buchwissen besteht große Übereinstimmung. Dies spricht für eine gewisse Traditionalität der Ethnoveterinärmedizin in Europa.

Es zeigte sich außerdem, dass dieses Wissen nicht rein statisch von Generation zu Generation weitergegeben wird, sondern in knapp einem Fünftel der Anwendungsberichte von den Nutzer*innen dynamisch weiterentwickelt wurde. Die ethnoveterinärmedizinische Forschung in Kombination mit Daten aus

historischen Quellen kann die Diskussion über eine zukünftige vereinfachte Registrierung traditioneller pflanzlicher Tierarzneimittel innerhalb der EU erleichtern.

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X. APPENDIX

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Table 2: *Commercially available veterinary phytotherapeutics in Germany (according to BVL, VETIDATA as of May 2021)*

Drug name	Medicinally active ingredients	Animal species	Application method	Manufacture
Apilife var.®	thymol, eucalyptus oil, campher, menthol	bees (WT: 0 days honey)	local	MEDISTAR Serumwerk Bernburg AG
Benacet aethericum	campher, eucalytus oil, rosemary oil, arnica tincture, aluminium diacethydroxide (acetic alumina), aluminium potassium sulphate (alum)	horse, cattle, pig (WT: 3 days edible tissue, milk)	local (pouder)	SaluVet GmbH
Chevi-rhin	eucalytol, menthol, pure turpentine oil, essential thyme oil	pigeon (exempt from compulsory marketing authorization according to §60 AMG)	local (solution)	Chevita GmbH
Chevicet®-t 281 mg/ml	eucalyptol, cineol	pigeon (exempt from compulsory marketing authorization according to §60 AMG)	supension	Chevita GmbH
Colosan®	anise oil, caraway oil, chin. cinnamon oil, fennel oil, sulphur	dog, rabbit, horse, cattle, sheep, goat, pig (WT: 0 days edible tissue, milk)	oral (solution)	SaluVet GmbH
Crataegus ad usum vet.	hawthorn fluid extract	dog, cat, horse	oral (solution)	DHU GmbH & Co.KG
Durchfallpulver N	vegetable charcoal, oak bark, tannin (tannic acid)	horse, cattle, sheep, goat, pig (WT: 0 days edible tissue, milk)	oral (powder)	SaluVet GmbH

Drug name	Medicinally active ingredients	Animal species	Application method	Manufacture
Enteroconpulver	kaolin, vegetable carbon, oak bark, silicon dioxide	horse, cattle, sheep, goat, pig (WT: 0 days edible tissue, milk)	oral (powder)	WDT
EucaComp®	eucalyptus oil, marjoram, lemon balm, calendula	horse, cattle, pig (WT: 3 days edible tissue, milk)	intrauterin, vaginal (suspension)	SaluVet GmbH
Eucalyptusöl N	eucalyptus oil	dog, cat, horse, cattle, sheep, goat (WT: 0 days edible tissue, milk)	oral, local, per inhalation	SaluVet GmbH
Euterbalsam	arnica tincture, camphor, eucalyptus oil, clove oil, rosemary oil, St. John's wort oil, laurel leaf oil	cattle, sheep, goat, horse (WT: 3 days edible tissue, milk)	local (emulsion)	SaluVet GmbH
GH 57-Salbe	camphor, eucalyptus oil, turpentine oil	horse, cattle, sheep, goat, zoo animals (WT: 3 days edible tissue, milk)	local (ointment)	Alvetra LIVISTO
Herbi Colan	angelica root extract, fennel extract, chamomile flower extract, coriander extract, caraway root extract, dandelion root extract, milk thistle extract, yarrow extract, wormwood extract	rabbit, rodent (exempt from compulsory marketing authorization according to §60 AMG)	oral (suspension)	WDT
Klausan®-Paste Dr. Schaette	larch turpentine, coneflower, mei	horse, cattle, sheep, goat, pig (WT: 3 days edible tissue, milk)	local (paste)	SaluVet GmbH
Livimun®	ginseng, coneflower	pigeon (exempt from compulsory marketing authorization according to §60 AMG)	oral (solution)	Chevita GmbH

Drug name	Medicinally active ingredients	Animal species	Application method	Manufacture
PhlogAsept®	witch hazel leaves, camomile blossoms, calendula blossoms, sage leaves, thymol	dog, cat, horse, cattle, sheep, goat, pig, poultry, rabbit (WT: 0 days edible tissue, milk)	local (solution)	SaluVet GmbH
Preis-coly	allium sativum, garlic citric acid, acidum citricum	ornamental fish (exempt from compulsory marketing authorization according to §60 AMG)		Preis Aquaristik
Stullmisan® vet Pulver	spruce tips, chamomile flowers, lemon balm leaves, wormwood herb	dog, horse, cattle, sheep, pig, poultry, rodents (WT: 1 day edible tissue)	oral (powder)	Intervet Pharma Stulln
Ventrasan® N	oak bark	dog, rabbit, mink, horse, cattle, sheep, goat, hen (WT: 0 days edible tissue, milk, egg)	oral (powder)	Agraria Pharm
Ventrarcin®	chamomile flowers, peppermint leaves, yarrow herb	horse, cattle, sheep, goat, pig, hen	oral (solution)	Serumwerk Bernburg AG

Table 4: Origins of the plant species and extraction procedures used to prepare 363 homemade single species herbal remedies (homemade single species herbal remedy report, HSHR) mentioned by farmers in Bavaria.

Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**Composition of the HSHR**		**Origin**			**Extraction procedure on farm (Number indicate HSHR)**							
							None	**Water**			**Alcohol**	**Oil/ fat**		**Others**
		single plant species	**plus natural sub-stance**	**bought/ recived**	**collected**	**cultivated**		**Room tempe-rature**	**Infu-sion**	**Decoc-tion**		**Room tempe-rature**	**heated**	
Asteraceae (12)	**All Asteraceae (71)**	62	11											
	***Calendula officinalis* L. (31)**													
	folium (1)	1				1								
	flos (22)	21	1	3*c[a,b]; 1*r		18			3		6	2	8	
	flos sine calice (8)	7	1			8					2		6	
	***Matricaria recutita* L. (11)**													
	flos (11)	9	2	3	8				9	1	1			
	***Arnica montana* L. (10)**													
	flos (9)	9		3*c[c]	6			1			5			
	herba (1)	1		1*c[d]										
	***Artemisia absinthium* L. (6)**													
	folium (1)	1		1					1					
	herba (5)	4	1	3	1	1	1		4					
	***Achillea millefolium* L. (4)**													

Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**Composition of the HSHR**		**Origin**			**Extraction procedure on farm (Number indicate HSHR)**							
							None	**Water**			**Alcohol**	**Oil/ fat**		**Others**
		single plant species	**plus natural sub-stance**	**bought/ recived**	**collected**	**cultivated**		**Room tempe-rature**	**Infu-sion**	**Decoc-tion**		**Room tempe-rature**	**heated**	
	folium (3)	3			3		2		1					
	herba (1)		1		1						1			
	Other Asteraceae (9)	8	1	3	5	1	5			1	2	1		
Linaceae (1)	***Linum usitatissimum* L. (24)**													
	semen (24)	21	3	22		2	2	3	3	15				1*M
Urticaceae (1)	***Urtica dioica* L. (23)**	19	4											
	folium (4)	3	1	1	3		4							
	semen (1)	1			1		1							
	herba and radix (1)	1			1		1							
	herba (17)	14	3		16	1	14	1	1		1			
Poaceae (6)	**All Poaceae (20)**													
	***Avena sativa* L. (8)**													
	semen (8)	7	1	6		2	2	1	1	4				
	***Secale cereale* L. (5)**													
	semen (5)	2	3	3		2	2	1						2*V
	***Triticum aestivum* L. (3)**													
	semen (3)	1	2	3				2						1*V
	Other Poaceae (4)	3	1	3	1		2			2				
Pinaceae (4)	**All Pinaceea (18)**													

Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**Composition of the HSHR**		**Origin**			**Extraction procedure on farm (Number indicate HSHR)**							
							None	**Water**			**Alcohol**	**Oil/ fat**		**Others**
		single plant species	**plus natural sub-stance**	**bought/ recived**	**collected**	**cultivated**		**Room tempe-rature**	**Infu-sion**	**Decoc-tion**		**Room tempe-rature**	**heated**	
	***Picea abies* (L.) H.Karst. (12)**													
	folium (1)		1		1			1						
	resina (3)	3			3		2				1			
	ramulus (8)	8		1; 3*c[e]	4		5							
	***Abies alba* Mill. (4)**													
	resina (1)	1			1		1							
	ramulus (3)	3			3		1			1				1*M
	Other Pinaceae (2)	2		1*c[f]	1						1			
Apiaceae (5)	**All Apiaceae (17)**													
	***Daucus carota* L. (9)**													
	radix (9)	6	3	9						9				
	***Peucedanum ostruthium* (L.) W.D.J.Koch (4)**													
	radix (4)	3	1	1*c[g]	3		1			1	1			
	Other Apiaceae (4)	3	1	2; 1*c		1	2	1						
Rosaceae (10)	**All Rosaceae (16)**													
	***Malus domestica Borkh*. (3)**													
	fructus (2)	2				2	2							
	fructus stipes (1)	1				1	1							
	***Potentilla anserina* L. (3)**													

Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**Composition of the HSHR**		**Origin**			**Extraction procedure on farm (Number indicate HSHR)**						
							None	**Water**			**Alcohol**	**Oil/ fat**	**Others**
		single plant species	**plus natural sub-stance**	**bought/ recived**	**collected**	**cultivated**		**Room tempe-rature**	**Infu-sion**	**Decoc-tion**		**Room tempe-rature**	**heated**	
	herba (2)	2			2									2*M
	radix (1)	1		1							1			
	***Potentilla erecta* (L.) Raeusch. (3)**													
	radix (3)	3		1, 2*c[h,i]						1				
	Other Rosaceae (7)	6	1	1*r	4	2	3		3	1				
Hypericaceae (1)	***Hypericum perforatum* L. (13)**													
	flos (12)	11	1		12						1	11		
	herba (1)	1			1		1							
Fagaceae (1)	***Quercus robur* L. (12)**													
	cortex (12)	11	1	5; 1*c[j]	6		2		3	6				
Lamiaceae (4)	**All Lamiaceae (11)**	9	2											
	***Salvia officinalis* L. (5)**													
	folium (1)	1				1		1						
	herba (4)	4			2	2	3	1						
	***Mentha x piperita* L. (4)**													
	folium (3)	2	1	2; 1*c[k]					2					
	herba (1)	1		1*c										
	Other Lamiaceae (2)	1	1	2*c[l,m]										
Theaceae (1)	***Camellia sinensis* (L.) Kuntze (10)**													

Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**Composition of the HSHR**		**Origin**			**Extraction procedure on farm (Number indicate HSHR)**						
							None	**Water**			**Alcohol**	**Oil/ fat**		**Others**
		single plant species	**plus natural sub-stance**	**bought/ recived**	**collected**	**cultivated**		**Room tempe-rature**	**Infu-sion**	**Decoc-tion**		**Room tempe-rature**	**heated**	
	folium (9)	4	5	9					9					
	herba (1)		1	1					1					
Boraginaceae (1)	***Symphytum officinale* L. (10)**													
	folium (3)	3			2	1	2		1					
	folium and radix (1)	1				1	1							
	radix (6)	6		1	4	1	1		1		2	2		
Rubiaceae (1)	***Coffea* L. (9)**													
	semen (9)	7	2	5; 4*c[n]					4					1*M
Fabaceae (6)	**All Fabaceae (8)**													
	***Onobrychis viciifolia* Scop. (2)**													
	herba (2)	2				2	2							
	***Trigonella foenum-graecum* L. (2)**													
	semen (2)	2		2				2						
	Other Fabaceae (4)	4			1	3	3				1			
Euphorbiaceae (2)	**All Euphorbiaceae (8)**													
	***Mallotus philippinensis* (Lam.)Müll.Arg. (6)**													
	fructus/fruit hairs **(6)**	6		6*c[o]										
	***Ricinus communis* L. (2)**													
	semen (2)	2		2*c[p]										

Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**Composition of the HSHR**		**Origin**			**Extraction procedure on farm (Number indicate HSHR)**							
							None	**Water**			**Alcohol**	**Oil/ fat**		**Others**
		single plant species	**plus natural sub-stance**	**bought/ recived**	**collected**	**cultivated**		**Room tempe-rature**	**Infu-sion**	**Decoc-tion**		**Room tempe-rature**	**heated**	
Papaveraceae (2)	**All Papaveraceae (7)**													
	***Chelidonium majs* L. (6)**													
	herba and radix (2)	2			2		1				1			
	herba (1)	1			1						1			
	stipes (3)	3			3		2					1		
	***Sanguinaria Canadensis* L.(1)**													
	radix (1)		1	1*c[q]										
Brassicaceae (3)	**All Brassicaceae (6)**													
	***Armoracia rusticana* G.Gaertn., B.Mey. & Scherb. (4)**													
	radix (4)	4		2; 1*c[r]		1	2							1*S
	Other Brassicaceae (2)	2		2			1				1			
Juglandaceae (1)	***Juglans regia* L. (6)**													
	folium (3)	3			1	2	3							
	semen (2)	1	1		1	1					1	1		
	ramulus (1)	1		1*r			1							
Amaryllidaceae(3)	**All Amaryllidaceae (5)**													
	***Allium cepa* L. (2)**													
	bulbus (2)	2		1, 1*r			1						1	
	***Allium sativum* L. (2)**													

Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**Composition of the HSHR**		**Origin**			**Extraction procedure on farm (Number indicate HSHR)**						
							None	**Water**			**Alcohol**	**Oil/ fat**		**Others**
		single plant species	**plus natural sub-stance**	**bought/ recived**	**collected**	**cultivated**		**Room tempe-rature**	**Infu-sion**	**Decoc-tion**		**Room tempe-rature**	**heated**	
	bulbus (2)	2		2			2							
	***Allium schoenoprasum* L. (1)**													
	herba and radix (1)		1			1	1							
Myrtaceae (1)	***Melaleuca alternifolia* (Maiden & Betche) Cheel (5)**													
	folim (5)	5		5*c[s]										
Plantaginaceae (1)	***Plantago lancelota* L. (5)**													
	folium (5)	4	1	1	4		2		2	1				
Polygonaceae (1)	***Rumex obtusifolius* L. (5)**													
	folium (3)	3			3		3							
	semen (2)	1	1		2		1		1					
Adoxaceae (1)	***Sambucus nigra* L. (4)**													
	folium (1)	1				1	1							
	flos (2)	2			1	1	1		1					
	fructus (1)	1			1		1							
Solanaceae (2)	**All Solanaceae (4)**													
	***Solanum tuberosum* L. (3)**													
	radix (3)	2	1	2		1	3							
	***Atropa bella-donna* L. (1)**													
	fructus (1)	1			1		1							

Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**Composition of the HSHR**		**Origin**			**Extraction procedure on farm (Number indicate HSHR)**							
							None	**Water**			**Alcohol**	**Oil/ fat**		**Others**
		single plant species	**plus natural sub-stance**	**bought/ recived**	**collected**	**cultivated**		**Room tempe-rature**	**Infu-sion**	**Decoc-tion**		**Room tempe-rature**	**heated**	
Lauraceae (2)	**All Lauraceae (4)**													
	***Cinnamomum camphora* (L.)J.Presl. (3)**													
	ramulus (3)	3		3*c[t]										
	***Laurus nobilis* L. (1)**													
	fructus (1)	1		1*c[u]										
Cupressaceae (1)	***Thuja occidentalis* L. (3)**													
	folium (2)	2		2*c[v]										
	ramulus (1)	1				1				1				
Others (33)	**plant species (39)**	36	3	9, 11*c[w]; 1*r	13	5	18	3	3	1	1	1		
Total: 57 botanical families, (108)	**Total (363)**	**314**	**49**	**167 (106, 56*c; 5*r)**	**129**	**67**	**115**	**18**	**55**	**45**	**31**	**19**	**15**	**9**

***M** = Extraction with milk, ***V** = Extraction with vinegar, ***S** = Extraction with salt; ***r** = received (from family and friends or neighbors), ***c** = commercial product: **a** = Weleda Calendulatinktur/ -essenz (20% Calendula officinalis2a, Ethanol, gereinigtes Wasser); **b** =Weleda Wundsalbe Calendula 70g (Calendula officinalis 2a Urtinktur, Sesamöl, Wollwachs, Butylhydroxytoluol); **c** = Caelo Arnikatinktur (in pharmacy: 1,000 mg Arnikatinktur (1:10), Auszugsmittel: Ethanol 70%); **d** = Weleda Arnikaessenz 100 ml (in pharmacy: Arnica plant total, 30% Ethanol); **e** = Stullmisan® vet. Pulver 30,56 mg/g MSD, veterinarian, 3,056 g Fichtenspitzenextrakt (15 – 20 : 1) 30,56 mg Auszugsmittel: Wasser, Methyl-4-hydroxybenzoat (E 218) 8,05 mg, Propyl-4-hydroxybenzoat (E 216) 3,45 mg; **f** = Latschenkiefernöl; **g** = Meisterwurz (Schnapps); **h** = Blutwurzschnaps; **I** = Blutwurztinktur; **j** = Durchfallpulver Dr. Schaette, Ingredients: Eichenrinden-Pulver, Tannin, Holzkohle-Pulver; **k** = Dr. CaiPan Minzsalbe =CAI-PAN®mint

including Japanese CAI-PAN®peppermintoil; **l** = Essential Lavendel oil; **m** = Organic Oregano Essential Oil from Greece; **n** = Coffea praeperata oral Dr. Schatte, Decoctum of Coffea tosta; **o** = Kamala Fruchthaarpulver; **p** =Rizinusöl (pharmacy); **q** = XXTerra® Salbe (Larson Laboratories, Inc. Fort Collins, Canada); **r** = ready to use 1,000 litre solution; **s** = essential tea tree oil: VitaPlus, Gesunde Plus, 2x OMBRI Teebaumöl; **t** = "grüne Kampfersalbe"; **u** = "Bremsenschutz: Lorbeeröl, Petroleum, stinkendes Tieröl, Kaliseife, Wasser, Isopropanol, Macrogol-20-glycerolmonooleat; **v** = Thuja Urtinktur DHU, Dillution; **w** = Protein Pulver bio Hanf (drogery); Phytolacca D1 DHU, 2x Schwarzkümmelöl pur 250ml; Wala Euphrasia Augentropfen; 2x Terrakraft OPC TERRAKRAFT® Trinkextrakt Hecht Pharma GmbH GB, Traubenkernextrakt; 2 x Sprüh-Lacta-Dipp® Dr. Schaette, Milchsäure, Aloe vera, Glycerol, Prebiotika; Noname Cola von Discounter;

Other Asteraceae: *Arnica chamissonis* Less. (1), *Artemisia abrotanum* L. (1), *Senecio alpinus* (L.) Scop. (2), *Silybum marianum* (L.) Gaertn. (1), *Tanacetum parthenium* (L.) SCH. BIP. (1), *Taraxacum officinale* F.H.Wigg. (2) *Tussilago farfara* L. (2); **Other Poaceae:** *Elymus repens* L. (1), *Hordeum vulgare* L. S.L. (1), *Panicum miliaceum* L. (2), *Triticum aestivum spelta* (1) Other Pinaceae: *Larix decidua* Mill. (1), *Pinus mugo* Turra (1); **Other Apiaceae:** *Apium graveolens* L. (1), *Foeniculum vulgare* Mill. (2), *Levisticum officinale* W.D.JKoch (1); **Other Rosaceae:** *Crataegus laevigata* (Poir.) DC. or monogyna JACQ. (1), *Filipendula ulmaria* (L.) Maxim. (1), *Geum urbanum* L. (1), *Pyrus communis* L. (1), *Rosa canina* L. (1), *Rubus fructicosus* L. (1), *Rubus idaeus* L. (1); **Other Lamiaceae:** *Lavandula angustifolia* Mill. (1), *Origanum vulgare* L. (1); **Other Fabaceae:** *Anthyllis vulneraria* L. (1), *Medicago sativa* L. (1), *Pisum sativum* L. s. l. (1), *Vicia faba* L.(1); **Other Brassicaceae:** *Brassica napus* L. emend. Metzg. (1), *Brassica oleracea* L. (convar. capitata var. Alba) (1)

Others (<3 HSHRs mentioned) (number of HSHRs)**:** *Acer campestre* L. (1), *Alga* spp. (1), *Aloe vera* (L.) Burm.f. (2), *Alpinia officinarum* Hance (1), *Asarum europaeum* L. (1), *Boswellia sacra* Flück. (1), *Cannabis sativa* L. (1), *Citrus sinensis* L. (1), *Citrus x limon* (L.) Osbeck. (2), *Cola acuminata* (P.Beauv.) Schott & Endl. (1), *Drosera anglica* Huds. (1), *Dryopteris filix-mas* (L.) Schott (1). *Equisetum arvense* L. (1), *Euphrasia rostkoviana* Hayne (2), *Fraxinus excelsior* L. (1), *Gentiana lutea* L. (1), *Geranium robertianum* L. (1), *Ilex aquifolium L*. (1), Lichenes (*Bactrospora dryina*) (1), *Lilium candidum* L. (1), *Mahonia aquifolium* (Pursh) Nutt. (1), *Musa* L. (2), *Nigella sativa* L. (2), *Ornithogalum caudatum* Aiton (1), *Phytolacca americana* L. (1), *Piptoporus betulinus* Bull. (1), *Salix caprea* L. (1), *Tropaeolum majus* L. (1), *Vaccinium myrtillus* L. (2), *Verbena officinalis* L. (1), *Viola odorata* L. (1), *Vitis vinifera* L. (2), *Zingiber officinale* Roscoe (1);

Table 5: Route of administration, categories of use and animal species treated for 448 use reports (UR) of 363 homemade herbal remedies containing a single herb (homemade single species herbal remedy report, HSHR).

		(Numbers indicate URs)																		
		use:		Application route				Categories of use according to ATCvet codes:									Animal species treated			total UR
Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	the-ra-peu-tical	pro-phy-lac-tical	external		internal		QD	QA	QG	QG52	QM	QP	QR	others	GS	Cattle	Small ruminant	others	
				I	A	oral	others													
Asteraceae (12)	**All Asteraceae (71)**																			
	***Calendula officinalis* L. (31)**																			
	folium (1)	1			1			1									1			**1**
	flos (22)	26	2	2	23	3		23	4				1				26	1^{S}	1^{H}	**28**
	flos sine calice (8)	11	2	10	3			10			2		1				8	2^{S}	3 (2^{D}, 1^{R})	**13**
	***Matricaria recutita* L. (11)**																			
	flos (11)	11	1	2	1	8	1^{e}	1	7					2	2^{QS}		8	1^{S}	3 (1^{H}, 1^{P}, 1^{C})	**12**
	***Arnica montana* L. (10)**																			
	flos (9)	14	3	7	9	1		7	1		3	5	1				14		3 (2^{Dog}, 1^{Cat})	**17**
	herba (1)		1	1				1									1			**1**
	***Artemisia absinthium* L. (6)**																			
	folium (1)	1				1										1	1			**1**
	herba (5)	4	1			5			4							1	5			**5**
	***Achillea millefolium* L. (4)**																			
	folium (3)	2	1	1		2		1	1		1						3			**3**
	herba (1)	2			2			1		1							2			**2**
	Other Asteraceae (9)	10	1	1	2	9		1	6			1	2	1			9	1^{S}	1^{Dog}	**11**

Botanical family (Number indicate plant species)	Plant species with ≥ 3 mentioned HSHR (Number indicate HSHR)	(Numbers indicate URs) use:		Application route				Categories of use according to ATCvet codes:									Animal species treated			total UR
		therapeutical	prophylactical	external I	external A	internal oral	internal others	QD	QA	QG	QG52	QM	QP	QR	others	GS	Cattle	Small ruminant	others	
Linaceae (1)	***Linum usitatissimum* L. (24)**	20	11	3	2	26		4	20			1				6	29	1^{G}	1^{P}	**31**
	semen (24)																			
Urticaceae (1)	***Urtica dioica* L. (23)**																			
	folium (4)	2	3			5			3							2	3		2^{C}	**5**
	semen (1)		1			1				1							1			**1**
	herba and radix (1)	1				1									1^{QN}				1^{P}	**1**
	herba (17)	7	15	1		21			5			2	1			14	13	1^{G}, 1^{S}	7 (3^{H}, 3^{C}, 1^{Pi})	**22**
Poaceae (6)	**All Poaceae (20)**																			
	***Avena sativa* L. (8)**																			
	semen (8)	5	5			10			6	3						1	8		2 (1^{P}, 1^{C})	**10**
	***Secale cereale* L. (5)**																			
	semen (5)	4	1	3			2^{o}	1	2	2							5			**5**
	***Triticum aestivum* L. (3)**																			
	semen (3)	3	1	2	1	1		1			2					1	4			**4**
	Other Poaceae (4)	2	3			5			2							3	2	1^{S}	$2(1^{D},1^{Dog})$	**5**
Pinaceae (4)	**All Pinaceea (18)**																			
	***Picea abies* (L.) H.Karst. (12)**																			
	folium (1)	1				1								1			1			**1**
	resina (3)	4		1	3			4									2	1^{G}	1^{Dog}	**4**
	ramulus (8)	3	6	8			1^{e}		3				3	3			6	2^{S}	1^{H}	**9**
	***Abies alba* Mill. (4)**																			

Botanical family (Number indicate plant species)	Plant species with ≥ 3 mentioned HSHR (Number indicate HSHR)	(Numbers indicate URs) use: therapeutical	use: prophylactical	Application route: external I	external A	internal oral	internal others	Categories of use according to ATCvet codes: QD	QA	QG	QG52	QM	QP	QR	others	GS	Animal species treated: Cattle	Small ruminant	others	total UR
	resina (1)	1			1			1											1^{Dog}	**1**
	ramulus (3)	3	3			6			2				3	1			3	2^{S}	1^{D}	**6**
	Other Pinaceae (2)	2				1	1^{e}							1		1	2			**2**
Apiaceae (5)	**All Apiaceae (17)**																			
	***Daucus carota* L. (9)**																			
	radix (9)	8	1			9			9								9			**9**
	***Peucedanum ostruthium* (L.) W.D.J.Koch (4)**																			
	radix (4)	5	1			6			1	1				1	1^{QV}	2	6			**6**
	Other Apiaceae (4)	4		1		3			2	1			1				4			**4**
Rosaceae (10)	**All Rosaceae (16)**																			
	***Malus domestica Borkh*. (3)**																			
	fructus (2)	2			2			1					1				2			**2**
	fructus stipes (1)	1			1								1				1			**1**
	***Potentilla anserina* L. (3)**																			
	herba (2)	2				2		1	1								2			**2**
	radix (1)	1				1			1								1			**1**
	***Potentilla erecta* (L.) Raeusch. (3)**																			
	radix (3)	3				3			3								3			**3**
	Other Rosaceae (7)	5	3		1	6	1^{e}	1	4	1			1	1			5		3 (1^{H}, 1^{Dog}, 1^{Cat})	**8**

		(Numbers indicate URs)																		
		use:		Application route				Categories of use according to ATCvet codes:									Animal species treated			total UR
Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**thera-peutical**	**pro-phy-lactical**	**external**		**internal**		**QD**	**QA**	**QG**	**QG52**	**QM**	**QP**	**QR**	**others**	**GS**	**Cattle**	**Small ruminant**	**others**	
				I	**A**	**oral**	**others**													
Hypericaceae (1)	***Hypericum perforatum* L. (13)**																			
	flos (12)	18	2	8	10		2[o]	10		2	4	3	1				16	1[S], 1[G]	2[Dog]	**20**
	herba (1)		1				1[e]									1	1			**1**
Fagaceae (1)	***Quercus robur* L. (12)**																			
	cortex (12)	9	3		1	11		1	11								12			**12**
Lamiaceae (4)	**All Lamiaceae (11)**																			
	***Salvia officinalis* L. (5)**																			
	folium (1)	1				1								1					1[Cat]	**1**
	herba (4)	2	3			2	2[e]							3		2	2	1[G]	2 (1[H], 1[C])	**5**
	***Mentha x piperita* L. (4)**																			
	folium (3)	2	1	1		2			1		1					1	2		1[C]	**3**
	herba (1)	1					1[n]							1			1			**1**
	Other Lamiaceae (2)	1	1	2							2						2			**2**
Theaceae (1)	***Camellia sinensis* (L.) Kuntze (10)**																			
	folium (9)	9				9			8					1			9			**9**
	herba (1)	1				1			1								1			**1**
Boraginaceae (1)	***Symphytum officinale* L. (10)**																			
	folium (3)	1	2			3		1	1							1	1	1[S]	1[C]	**3**
	folium and radix (1)	2			2			2										1[S]	1[H]	**2**
	radix (6)	8		6	2			2			1	5					3	2[S], 1[G]	2 (1[Dog], 1[C])	**8**

		(Numbers indicate URs)																			
		use:		Application route				Categories of use according to ATCvet codes:									Animal species treated			total UR
Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**thera-peu-tical**	**pro-phy-lac-tical**	**external**		**internal**		**QD**	**QA**	**QG**	**QG52**	**QM**	**QP**	**QR**	**others**	**GS**	**Cattle**	**Small ruminant**	**others**	
				I	**A**	**oral**	**others**													
Rubiaceae (1)	***Coffea* L. (9)**																			
	semen (9)	8	1			9			5							4	9			**9**
Fabaceae (6)	**All Fabaceae (8)**																			
	***Onobrychis viciifolia* Scop. (2)**																			
	herba (2)	1	1			2							2				1	1^{S}		**2**
	***Trigonella foenum-graecum* L. (2)**																			
	semen (2)	3		1	2			2			1						3			**3**
	Other Fabaceae (4)	1	3		1	3		1						1		2	3	1^{S}		**4**
Euphorbiaceae (2)	**All Euphorbiaceae (8)**																			
	***Mallotus philippinensis* (Lam.)Müll.Arg. (6)**																			
	fructus/fruit hairs **(6)**	6	5			11			2				9				5	4^{S}	2 (1^{C}, 1^{Cat})	**11**
	***Ricinus communis* L. (2)**																			
	semen (2)	2				2			2										2 (1^{P}, 1^{Dog})	**2**
Papaveraceae (2)	**All Papaveraceae (7)**																			
	***Chelidonium majs* L. (6)**																			
	herba and radix (2)	3			3			2							1^{QV}		2		1^{H}	**3**
	herba (1)	1			1			1											1^{H}	**1**
	stipes (3)	3			3			3									3			**3**
	***Sanguinaria Canadensis* L.(1)**																			
	radix (1)	1			1										1^{QV}				1^{H}	**1**

Botanical family (Number indicate plant species)	Plant species with ≥ 3 mentioned HSHR (Number indicate HSHR)	(Numbers indicate URs) use: therapeutical	use: prophylactical	Application route: external I	external A	internal oral	internal others	Categories of use according to ATCvet codes: QD	QA	QG	QG52	QM	QP	QR	others	GS	Animal species treated: Cattle	Small ruminant	others	total UR
Brassicaceae (3)	**All Brassicaceae (6)**																			
	***Armoracia rusticana* G.Gaertn., B.Mey. & Scherb.(4)**																			
	radix (4)	2	3			3			1					4			3		2 (1^{H}, 1^{P})	**5**
	Other Brassicaceae (2)	2		1		1			1			1					2			**2**
Juglandaceae (1)	***Juglans regia* L. (6)**																			
	folium (3)	2	3			5							5				1	1^{S}	3 (1^{P}, 1^{C}, 1^{D})	**5**
	semen (2)	1	1	1		1			1				1				2			**2**
	ramulus (1)		1			1			1								1			**1**
Amaryllidaceae(3)	**All Amaryllidaceae (5)**																			
	***Allium cepa* L. (2)**																			
	bulbus (2)	3		1		2					1		2				2	1^{S}		**3**
	***Allium sativum* L. (2)**																			
	bulbus (2)	2	1			3		1	1					1			2	1^{S}		**3**
	***Allium schoenoprasum* L. (1)**																			
	herba and radix (1)	1				1				1							1			**1**
Myrtaceae (1)	***Melaleuca alternifolia* (Maiden & Betche) Cheel (5)**																			
	folim (5)	4	3	4	3			3			2		2				5		2 (1^{H}, 1^{Dog})	**7**
Plantaginaceae (1)	***Plantago lancelota* L. (5)**																			
	folium (5)	5		1	1	3		2						3			4		1^{Dog}	**5**

		(Numbers indicate URs)																		
		use:		Application route				Categories of use according to ATCvet codes:									Animal species treated			total UR
Botanical family (Number indicate plant species)	**Plant species with ≥ 3 mentioned HSHR** (Number indicate HSHR)	**the-ra-peu-tical**	**pro-phy-lac-tical**	**external**		**internal**		**QD**	**QA**	**QG**	**QG52**	**QM**	**QP**	**QR**	**others**	**GS**	**Cattle**	**Small ruminant**	**others**	
				I	**A**	**oral**	**others**													
Polygonaceae (1)	***Rumex obtusifolius* L. (5)**																			
	folium (3)	4		2	2			3	1								4			**4**
	semen (2)	2				2			2								2			**2**
Adoxaceae (1)	***Sambucus nigra* L. (4)**																			
	folium (1)	1		1								1					1			**1**
	flos (2)	2	1			3			3								1		2 (1^{C}, 1^{Dog})	**3**
	fructus (1)		2			2							1			1			2^{C}	**2**
Solanaceae (2)	**All Solanaceae (4)**																			
	***Solanum tuberosum* L. (3)**																			
	radix (3)	3		1	1	1		1						1		1	3			**3**
	***Atropa bella-donna* L. (1)**																			
	fructus (1)	1			1			1									1			**1**
Lauraceae (2)	**All Lauraceae (4)**																			
	***Cinnamomum camphora* (L.) J.Presl. (3)**																			
	ramulus (3)	4		4				1			3						4			**4**
	***Laurus nobilis* L. (1)**																			
	fructus (1)	1	1	2									2				1		1^{H}	**2**
Cupressaceae (1)	***Thuja occidentalis* L. (3)**																			
	folium (2)	2			2			2									1		1^{Dog}	**2**
	ramulus (1)	1				1				1							1			**1**

Botanical family (Number indicate plant species)	Plant species with ≥ 3 mentioned HSHR (Number indicate HSHR)	(Numbers indicate URs) use: therapeutical	use: prophylactical	Application route: external I	external A	internal oral	internal others	Categories of use according to ATCvet codes: QD	QA	QG	QG52	QM	QP	QR	others	GS	Animal species treated: Cattle	Small ruminant	others	total UR
Others (33)	**plant species (39)**	35	11	8	5	29	4[e]	1	13	7	6	2	5	1	3[QS]	8	33	2[S]	11 (3[H], 4[C] ,2[Dog], 2[Cat])	**46**
Total 57 botanical families (108)	**Total (363)**	**330**	**118**	**72**	**100**	**260**	**16**	**101**	**139**	**19**	**31**	**22**	**46**	**28**	**9**	**53**	**340**	**26[S]; 7[G]**	**75**	**448**

I: intact skin; **A:** altered or sore skin, **QD:** Dermatologicals, **QA:** Alimentary tract and metabolism, **QG:** Genito-urinary system and sex hormons, **QG52:** Mastitis, **QM:** Musculo-skeletal system, **QR:** Respiratory system. **Application others** = 4 others =4x intravaginal/ intrauterine; **e** = 11 = treatment of housing environment; **n** = 1 = intranasal; **ATCVet others** = 5x QS = Sensory organ; 3x QV = Various indications; 1x QN =Nervous system (behavior); **small ruminant**: **S** = Sheep, **G** = Goat; **others: H** = Horse, **D** = Donkey, **C** = Chicken, **Dog** = Dog, **Cat** = Cat, **P** = Pig, **Pi** = Pigeon, **R** = Rabbit

Other Asteraceae (number of URs)**:** *Arnica chamissonis* Less. (1), *Artemisia abrotanum* L. (1), *Senecio alpinus* (L.) Scop. (2), *Silybum marianum* (L.) Gaertn. (1), *Tanacetum parthenium* (L.) SCH. BIP. (1), *Taraxacum officinale* F.H.Wigg. (3) *Tussilago farfara* L. (2); **Other Poaceae:** *Elymus repens* L. (1), *Hordeum vulgare* L. S.L. (1), *Panicum miliaceum* L. (2), *Triticum aestivum spelta* (1) **Other Pinaceae:** *Larix decidua* Mill. (1), *Pinus mugo* Turra (1); **Other Apiaceae:** *Apium graveolens* L. (1), *Foeniculum vulgare* Mill. (2), *Levisticum officinale* W.D.JKoch (1); **Other Rosaceae:** *Crataegus laevigata* (Poir.) DC. or monogyna JACQ. (1), *Filipendula ulmaria* (L.) Maxim. (1), *Geum urbanum* L. (1), *Pyrus communis* L. (1), *Rosa canina* L. (2), *Rubus fructicosus* L. (1), *Rubus idaeus* L. (1); **Other Lamiaceae:** *Lavandula angustifolia* Mill. (1), *Origanum vulgare* L. (1); **Other Fabaceae:** *Anthyllis vulneraria* L. (1), *Medicago sativa* L. (1), *Pisum sativum* L. s. l. (1), *Vicia faba* L.(1); **Other Brassicaceae:** *Brassica napus* L. emend. Metzg. (1), *Brassica oleracea* L. (convar. capitata var. Alba) (1)

Others (<3 HSHRs mentioned) (number of URs)**:** *Acer campestre* L. (1), *Alga* spp. (1), *Aloe vera* (L.) Burm.f. (2), *Alpinia officinarum* Hance (2), *Asarum europaeum* L. (1), *Boswellia sacra* Flück. (1), *Cannabis sativa* L. (2), *Citrus sinensis* L. (1), *Citrus x limon* (L.) Osbeck (2), *Cola acuminata* (P.Beauv.) Schott & Endl. (1), *Drosera anglica* Huds. (2), *Dryopteris filix-mas* (L.) Schott (1). *Equisetum arvense* L. (1), *Euphrasia rostkoviana* Hayne (3), *Fraxinus excelsior* L. (1), *Gentiana lutea* L. (1), *Geranium robertianum* L. (1), *Ilex aquifolium L*. (1), Lichenes (*Bactrospora dryina*) (1), *Lilium candidum* L. (1), *Mahonia aquifolium* (Pursh) Nutt. (1), *Musa* L. (2), *Nigella sativa* L. (3), *Ornithogalum caudatum* Aiton (1), *Phytolacca americana* L. (1), *Piptoporus betulinus* Bull. (1), *Salix caprea* L. (1), *Tropaeolum majus* L. (1), *Vaccinium myrtillus* L. (2), *Verbena officinalis* L. (1), *Viola odorata* L. (1), *Vitis vinifera* L. (3), *Zingiber officinale* Roscoe (1);

Table 6: Daily dosage in dry plant equivalent per kg metabolic body weight (g/kg$^{0.75}$) of homemade single species herbal remedies (HSHR) used in orally administered preparations, and dosage recommendations from the literature.

	Daily dosage (g/kg$^{0.75}$)										
Plant species with ≥ 3 HSHR and documented dosage (119)	**Cattle (650 kg) (MBW = 128.7 g/kg$^{0.75}$)**	**Calf (75 kg) (MBW 25.5 g/kg$^{0.75}$)**	**Small ruminant (80 kg) (MBW = 27.0 g/kg$^{0.75}$)**	**others**	**median (arithmetic mean, minimum value - maximum value)**	**Median CH-Ethnovet* (g/kg$^{0.75}$)**	**Fröhner (1900)**	**Zipperlen (1959)/ Mangold & Reicherter (1907)**	**Reichling et al. (2005. 2008. 2016)**	**Brendieck-Worm & Melzig (2018)**	**Converted human daily dosage (g/kg$^{0.75}$)**
***Linum usitatissimum* L.** semen(19)	0.272, 1.554, 1.554, 7.742	0.118, 0.157, 0.157, 0.282, 0.471, 0.824, 1.38, 1.569, 3.922, 4.259, 6.388, 8.659, 94.118, 94.118,		1.88	**1.554 (12.1; 0.118 - 94.118)**	3.15 (1.5 - 5.1)	0.389-0.777 (cattle); 1.064 - 2.660 (goat)	2.331 (of oil, cattle)	0.39 -0.777 (cattle); 1.064-2.660 (goat)	0.389-0.777 (cattle); 1.064-2.660 (goat) = Fröhner	0.66 (obstipation) 0.22-0.44 (gastritis/ enteritis)[a]
***Mallotus philippinensis* (Lam.)Müll.Arg.** fruit hairs (10)	0.171, 0.171	0.194, 0.784	0.078, 0.211, 0.37, 0.37	0.299, 0.8	**0.255 (0.345; 0.078 - 0.8)**	na	0.18 - 1.34 (dog)	0.09 - 0.357 (dog)	na	0.117 (cattle). 0.519 (goat) = Reinhardt	na
***Daucus carota* L.** Radix (9)		0.110, 0.235, 2.501, 3.740, 3.924, 5.578, 6.918, 7.481, 22.062			**3.924 (5.839; 0.11 - 22.062)**	1.596	na	38.9 (horse)	na	12.626 (cattle); 6.65 (goat)[c]	na
***Camellia sinensis* (L.) Kuntze** folium(8) + herba (1)	0.025	0.155, 0.184, 0.212, 0.282, 0.424, 0.624, 1.226, 1.255			**0.282 (0.487; 0.025 - 1.255)**	0.41 (0.26 - 0.74)	na	na	0.04[g]	0.039 - 0.059 (cattle); 0.093 (goat)	0.22-0.33[b]
***Urtica dioica* L.** folium (4)	0.039, 0.932, 0.932			0.34	**0.636 (0.561; 0.039 - 0.932)**	0.43 (0.08 - 1.755)	na	na	0.19-0.39 (cattle); 0.532-0.798 (goat)	na	0.35-0.52[a]

Plant species with ≥ 3 HSHR and documented dosage (119)	Daily dosage (g/kg$^{0.75}$) Cattle (650 kg) (MBW = 128.7 g/kg$^{0.75}$)	Calf (75 kg) (MBW 25.5 g/kg$^{0.75}$)	Small ruminant (80 kg) (MBW = 27.0 g/kg$^{0.75}$)	others	median (arithmetic mean, minimum value - maximum value)	Median CH-Ethnovet* (g/kg$^{0.75}$)	Fröhner (1900)	Zipperlen (1959)/ Mangold & Reicherter (1907)	Reichling et al. (2005. 2008. 2016)	Brendieck-Worm & Melzig (2018)	Converted human daily dosage (g/kg$^{0.75}$)
herb (2)	0.095, 0.808				**0.452 (0.095 - 0.808)**	0.542 (0.14 - 1.0)	na	na	0.19-0.39 (cattle); 0.532-0.798 (goat)	0.194 - 0.389 g (cattle); 0.370 - 0.926 g (goat)	0.35-0.52[a]
semen (1)	0.078				**0.078**	na	na	na	na	na	na
herba + radix (1)				0.987	**0.987**	na	na	na	na	na	na
***Coffea* L.** semen (8)	0.078, 0.159, 0.256, 0.344, 0.777, 3.108,	0.118, 0.251			**0.254 (0.636; 0.078 - 3.108)**	0.31 (0.104 - 0.79)	na	0.282 (pig)	na	0.91 - 1.818 (cattle); 0.533 - 1.067 (sheep)[e]	na
***Matricaria recutia* L. f**los (7)		0.157, 0.235, 0.314, 0.553, 0.682, 1.141, 4.706			**0.553 (1.113; 0.157 - 4.706)**	0.215 (0.093 - 0.53)	0.194-0.389 (cattle); 0266-0.532 (goat)	0.194 - 0.389 (cattle); 0.185 - 0.37 (goat)	0.194-0.389 (cattle); 0.266-0.532 (goat)	0.194 - 0.389 (cattle); 0.185 - 0.37 (goat)	0.39-0.52[a]
***Quercus robur* L.** cortex (7)	0.124	0.004, 0.079, 0.157, 0.275, 0.549, 2.976			**0.157 (0.595; 0.004 - 2.976)**	0.532 (0.216-1.06)	0.194-0.389 (cattle); 0266-0.532 (goat)	0.194 - 0.389 (cattle); 0.185 - 0.37 (goat)	0.194-0.389 (cattle); 0.266-0.532 (goat)	0.194-0.389 (cattle); 0266-0.532 (goat) = Fröhner	0.133[b]
***Avena sativa* L.** semen (6)		0.451, 0.510, 3.937, 13.931, 21.609, 61.34			**8.934 (16.963; 0.451 - 61.34)**	6.87 (3.73 - 13.07)	na	na	na	na	na

Plant species with ≥ 3 HSHR and documented dosage (119)	Daily dosage (g/kg$^{0.75}$) Cattle (650 kg) (MBW = 128.7 g/kg$^{0.75}$)	Calf (75 kg) (MBW 25.5 g/kg$^{0.75}$)	Small ruminant (80 kg) (MBW = 27.0 g/kg$^{0.75}$)	others	median (arithmetic mean, minimum value - maximum value)	Median CH-Ethnovet* (g/kg$^{0.75}$)	Fröhner (1900)	Zipperlen (1959)/ Mangold & Reicherter (1907)	Reichling et al. (2005. 2008. 2016)	Brendieck-Worm & Melzig (2018)	Converted human daily dosage (g/kg$^{0.75}$)
***Artemisia absinthium* L.** herba (4) + folium (1)	0.016, 0.059, 0.072, 0.356	1.49			**0.072 (0.399; 0.016 - 0.356)**	0.04 (0.02-0.1)	0.155-0.389 (cattle); 0.185-0.37 (goat)	na	0.622 (cattle); 0.93 (goat)	0.155 - 0.389 (cattle); 0.185 - 0.37 (goat) = Fröhner	0.087 - 0.131[f]
***Peucedanum ostruthium* (L.) W.D.J.Koch** radix (4)	0.001, 0.001, 0.007	0.016, 0.035			**0.007 (0.012; 0.001 - 0.035)**	0.027 (0.018 - 0.036)	0.194 - 0.389 (cattle); 0.185 - 0.37 (goat)	0.311 (cattle)	na	na	na
***Picea abies* (L.) H.Karst. f**olium (1) + ramulus (3)		0.001, 0.024, 0.243	0.193		**0.109 (0.115; 0.001 - 0.243)**	na	na	na	na	0.233 - 0.544 (cattle); 0.556 - 1.111 (sheep); Röll	na
***Armoracia rusticana* G.Gaertn.,B.Mey. & Scherb.** radix (3)	0.047	0.023		0.544	**0.047 (0.205; 0.023 - 0.544)**	0.893 (0.525 - 1.858)	na	na	na	0.233 - 0.699 (cattle); 0.556 - 1.111 (sheep); Röll	0.175[f]
***Abies alba* Mill.** ramulus (3)		39.216, 39.216	0.263		**39.216 (16.232; 0.263 - 39.216)**	3.325 (2.128 - 5.319)	na	na	na	na	na

Plant species with ≥ 3 HSHR and documented dosage (119)	Daily dosage (g/kg$^{0.75}$) Cattle (650 kg) (MBW = 128.7 g/kg$^{0.75}$)	Calf (75 kg) (MBW 25.5 g/kg$^{0.75}$)	Small ruminant (80 kg) (MBW = 27.0 g/kg$^{0.75}$)	others	median (arithmetic mean, minimum value - maximum value)	Median CH-Ethnovet* (g/kg$^{0.75}$)	Fröhner (1900)	Zipperlen (1959)/ Mangold & Reicherter (1907)	Reichling et al. (2005. 2008. 2016)	Brendieck-Worm & Melzig (2018)	Converted human daily dosage (g/kg$^{0.75}$)
***Calendula officinalis* L.** flos (3)		0.024, 0.109, 0.278			**0.109 (0.137; 0.024 - 0.278)**	0.71	na	na	na	na	0.044 - 0.131
***Allium sativum* L.** bulbus (3)		0.056, 0.056	0.03		**0.056 (0.047; 0.03 - 0.056)**	0.54 (0.27 - 1.6)	na	na	0.16 -0.233 (cattle)	0.155 - 0.233 (cattle)	0.039 - 0.052[f]
***Plantago lancelota* L.** folium (3)		0.01, 0.063, 0.424			**0.063 (0.166; 0.01 - 0.424)**	2.94 (1.53 - 4.35)	na	na	na	0.152 - 0.505 (cattle); 0.089 - 0.29615 (goat)[d]	0.131 - 0.262[f]
***Nigella sativa* L.** (3)		0.11		2.5, 2.5	**2.5 (1.703; 0.11 - 2.5)**	1.228	na	na	na	0.047 - 0.078 (horse)	na
***Taraxacum officinale* F.H.Wigg.** flos (2)	0.019	0.016			**0.016 (0.0175 - 0.019)**	na	0.194 - 0.389 (cattle); 0.185 - 0.37 (sheep)	na	0.117 - 0.389 (cattle); 0.111 - 0.37 (goat)	0.117 - 0.389 (cattle); 0.111 - 0.37 (goat)	0.131 - 0.175[f]
root (1)		0.078			**0.078**	0.117 (0.059 - 0.175)			0.117 - 0.389 (cattle); 0.111 - 0.37 (goat)	Reichling (root incl. herb)	
others <3 (52)											

*median plus in brackets 25% perzentil and 75% perzentil (Bischoff et al., 2016; Mayer et al., 2017; Mertenat et al., 2020; Schmid et al., 2012; Stucki et al., 2019)

a = (ESCOP MONOGRAPHS, 2003, 2009; ESCOP, 2017); **b** = WICHTL (2009) Teedrogen und Phytopharmaka, Ein Handbuch für die Praxis auf wissenschaftlicher Grundlage; **c** = according to 250 mg per 100 kg for every species; **d** = according to 3-10g (100kg KGW (AICHBERGER et al. (2006) human dosage); **e** = Coffein: 5-10 mg/kg KGW for every species, 150 ml Coffee = 80-140 mg Coffein; **f** = WENIGMANN (2017) Phytotherapie Arzneidrogen - Phytopharmaka - Anwendung; **g** = no dosage available for cattle, dosage based on information for dogs assumed for 30 kg dog and once daily half a cup of tea (100ml) and 5g black tea per litre.

Table 7: Concentration of medicinal plants in homemade single species herbal remedies (HSHR) for topical use, and recommendations from the literature for veterinary and human medicine

Plant species with ≥ 3 HSHR and documented dosage (44)	**g dry plant material in 100g of finished product**					**Recommended concentration equivalent in 100 g of finished product**				**Recommended concentration equivalent in 100 g of finished product (ESCOP 2003, 2009) for human medicine**		
	no extraction	**Extraction with water**	**Extraction with alcohol**	**Extraction with oil/fat**	**Arithmetic mean (median; min - max)**	**Arithmetic mean of studies from Switzerland[d] (median; min - max)**	**Zipperlen (1959)/ Mangold (1907)**	**Reichling et al. (2016)**	**Brendieck-Worm & Melzig (2018)**	**Extraction with water**	**Extraction with alcohol**	**Extraction with oil/ fat**
***Calendula officinalis* L.** flos (15)			3.1, 20.0, 20.0, 20.0	0.3, 0.6, 0.6, 0.9, 0.9, 1.0, 1.0, 1.7, 2.0, 2.8, 14.0	**5.9 (1.7; 0.3 -20.0)**	1.8 (1.4; 0.4–6.0) for oil/ fat extraction	16.7	11.1	9.1	0.67 - 1.33	20.0	1.0 - 5.0
***Melaleuca alternifolia* (Maiden & Betche) Cheel** essential oil (7)[a]	4 x	0.5, 0.5, 0.6			**0.5 (0.5; 0.5 - 0.6)**	na	na	10.0	0.3 - 0.4(in water); 1.0 - 10.0 (ointment base)			
***Symphytum officinale* L.** radix (5) and folium (2)	3 x radix, 2 x folium			4.5, 8.3	**6.4 (6.4; 4.5 - 8.3)**	8.054 (10.03; 3.24–10.87) for alcohol extraction	na	10.0	16.7 (tincture); 9.1 (decoction)			up to 17.5
***Linum usitatissimum* L.** semen (5)		0.7, 0.7, 3.8, 3.8, 3.8 (median 3.8)			**2.6 (3.8; 0.7 - 3.8)**	19.7(21.6; 15.6 - 23.7) for extraction with water	50.0	28.6	6.3	30.0 - 50.0 (cataplasm)[c]		

Plant species with ≥ 3 HSHR and documented dosage (44)	**g dry plant material in 100g of finished product**					**Recommended concentration equivalent in 100 g of finished product**				**Recommended concentration equivalent in 100 g of finished product (ESCOP 2003, 2009) for human medicine**		
	no extraction	**Extraction with water**	**Extraction with alcohol**	**Extraction with oil/fat**	**Arithmetic mean (median; min - max)**	**Arithmetic mean of studies from Switzerland[d] (median; min - max)**	**Zipperlen (1959)/ Mangold (1907)**	**Reichling et al. (2016)**	**Brendieck-Worm & Melzig (2018)**	**Extraction with water**	**Extraction with alcohol**	**Extraction with oil/ fat**
***Arnica montana* L.** flos (4)			0.5, 0.5, 10.0, 10.0,		**5.3 (5.3; 0.5 - 10.0)**	1.9 (1.2; 0.9 - 2.1) for alcohol extraction	9.1	10.0	2.0 (max 25.0 tincture in ointment), 16.7 (for oil extract)	2.0	10.0 - 33.3	
***Trigonella foenum-graecum* L.** semen (3)		20.0, 20.0, 20.0			**20.0 (20.0; 20.0 - 20.0)**	na	na	30.0/50.0 (cattle); 15.0 (goat)	16.7 (cataplasm)			
***Cinnamomum camphora* (L.) J.Presl.** (3)[b]				10.0, 22.0, 22.0	**18.0 (22.0; 10.0 - 22.0)**	na	na	na	10.0 ointment - 20.0 oil forte		0.1 - 10.0	5.0 - 25.0

[a] = commercial product: Aetheric oil (use in percent of oil in finished HSHRs)
[b]= commercial product: "grüne Kampfersalbe St Severin" from the vet
[c] = WENIGMANN (2017)
[d] = (DISLER et al., 2014; BISCHOFF et al., 2016; MAYER et al., 2017; STUCKI et al., 2019)

4. Calls for participants

Das Zuchtziel der Dorperschafe

Die Rasse Dorper bietet den Schafhaltern eine Reihe von positiven Eigenschaften. Gute Böcke zeichnen sie sich aus durch:

- Robustheit: das heißt weder heiße Sommer noch harte Winter stellen ein Problem dar
- Gute Marschfähigkeit sowie viel Herdentrieb, was das Hüten leicht macht.
- Unselektives Fressverhalten, was eine gute Ausnutzung des Aufwuchses bedeutet.
- Exquisite Schlachtkörper durch ausgeprägte Muskelpartien und einen hervorragenden Fleischgeschmack.
- Hohe Fruchtbarkeit durch Asaisonalität: eine Dorpermutter kann problemlos alle acht Monate Zwillinge groß ziehen.
- Leichte Geburten mit vitalen Lämmern und sehr fürsorglichen Muttertieren.

die Zuchtziele gut vererben (Siehe Kasten oben). Nach ihrer Auskunft stellt sich im Moment die aktuelle Situation in Deutschland wie folgt dar: Insgesamt sind rund 100 Betriebe mit 200 Böcken und 2108 Mutterschafen registriert, wobei in Bayern mit neun Herdbuchbetrieben, 27 Böcken und 411 Mutterschafen die größten Bestände beheimatet sind.

René Gomringer, Fachberater am Landwirtschaftsamt Pfaffenhofen, und noch bis Juni 2019 Geschäftsführer des Landesverbands Bayerischer Schafhalter stellte Aktuelles aus der Schafhaltung vor. Nach Invekos-Daten halten in Bayern 6321 (-246) Betriebe 210 900 (- 6589) Mutterschafe, was pro Betrieb im Durchschnitt 33 Mutterschafe bedeutet.

Der Verband umfasst laut Gomringer 1391 Mitglieder und die Bayerische Herdbuchgesellschaft für Schafe ist mit 441 Mitglieder sehr stabil. Insgesamt bestehen in Bayern 33 Schafhaltervereinigungen. Die Zahl der Mutterschafe hat in den letzten Jahren stetig abgenommen.

Der Wolf kann zu jeder Zeit an jedem Ort sein

Die Großen Beutegreifer beherrschen zurzeit die Diskussionen in der Schafhaltung. Dabei besteht die Hoffnung, dass es bei den Hüteschäfern nicht ganz so schlimm wird, wogegen es vermutlich bei der Koppelschafhaltung mit voller Wucht einschlagen wird. „Wir gehen in Bayern davon aus, dass zu jeder Zeit an jedem Ort ein Wolf auftauchen kann", stellte Gomringer fest und wies darauf hin, dass die Entschädigung im Schadensfall relativ gut geregelt ist. Künftig gelte es, den Schwerpunkt auf den Herdenschutz zu stellen. „Doch wir wissen, dass das nicht hundertprozentig funktioniert", betonte er.

Zudem sind die Augen bereits auf die Gemeinsame Agrarpolitik 2020 gerichtet. „Die Schäfer beziehen 60 % ihres Einkommens über die Förderung in Form von Ausgleichszahlungen über das Kulturlandschaftsprogramm und Vertragsnaturschutzprogramm. Das ist entscheidend für die Betriebe und sollte möglichst auch so bleiben", meinte Gomringer, der feststellte, dass dies der Hauptauftrag der Berufsvertretung darstellt.

Nicht zuletzt spielt das Tierwohl eine große Rolle. Er ging davon aus, dass eventuell das Schwanzkupieren bei den weiblichen Lämmern verboten wird. Auch das Schlachten tragender Schafe steht im Mittelpunkt. Eine gute Maßnahme entwickelte die Erzeugergemeinschaft Bayerischer Schafhalter mit der Testung der Tiere über eine Trächtigkeitsdiagnose. „Das läuft sehr gut an und wird prima angenommen", informierte er und fügte hinzu, dass der Berufsnachwuchs im Rahmen der Aus- und Fortbildung dringend gefördert werden muss. **Helga Gebendorfer**

Altes Wissen zur Tierbehandlung gesucht

Seit Menschengedenken werden Pflanzen zur Behandlung und Vorbeugung von Krankheiten bei unseren Nutz- und Haustieren eingesetzt. Ob gezielt gefüttert, als Tee aufgekocht oder in Form von Tinkturen und Salben entfalten die Kräuter ihre Wirkung. Mitte des letzten Jahrhunderts jedoch verdrängten vertriebene chemisch synthetische Medikamente diese lokalen und traditionell von Generation zu Generation weitergegebenen Therapiemethoden zunehmend. Das Erfahrungswissen – insbesondere das zur Behandlung von Tieren – wurde bisher nördlich der Alpen kaum dokumentiert und es ist zu befürchten, dass es in Vergessenheit gerät. Theresa Schlittenlacher möchte für ihre Doktorarbeit das alte Wissen sichern.

FOTO: THERESA SCHLITTENLACHER

Wer seine Tiere noch mit Kräutern behandelt ist aufgefordert sein Wissen für eine Forschungsarbeit weiterzugeben.

Wer z.B. seine Kälber bei Durchfallerkrankungen einen Fenchel- oder Kamillentee füttert, selbst Ringelblumensalbe zubereitet oder noch jemanden kennt, der über Erfahrungswissen zur Heilkräuter- und Hausmittelanwendung verfügt, ist gefragt. Das Forschungsinstitut für biologischen Landbau führt hierzu, in Zusammenarbeit mit dem Lehrstuhl für Innere Medizin und Chirurgie der Wiederkäuer an der LMU München aktuell eine Forschungsarbeit durch. Theresa Schlittenlacher möchte Interviews mit Bäuerinnen, Bauern und Menschen aus dem landwirtschaftlichen Umfeld führen, dabei die Anwendungserfahrungen und Rezepturen sammeln und so das traditionelle Wissen auch für zukünftige Generationen sichern. Mit den gesammelten Daten soll wird eine Rezeptsammlung aufgebaut werden, die nach Abschluss des Projektes alle Teilnehmer kostenlos erhalten.

Wer mitmachen will kann sich an Theresa Schlittenlacher, Hölderlinstr. 1, 89358 Kammeltal, Tel. 08225-3330 und 0174-7593213, E-Mail: theresa.schlittenlacher@fibl.org wenden. ■

FOTO: ANDREA TÖLLE

Für Züchter der Thüringer Waldziege gibt es Fördermittel.

Förderung für gefährdete Ziegenrassen

Um die genetischen Ressourcen heimischer Nutztierrassen zu bewahren hat Landwirtschaftsministerin Michaela Kaniber das Förderprogramm zum Schutz gefährdeter Rassen ausgeweitet. Von der EU-Kommission wurde nun die Förderung von drei heimischen Ziegenrassen offiziell mitgeteilt:

- der Bunten Deutschen Edelziege,
- der Weißen Deutschen Edelziege
- und der Thüringer Waldziege.

„Damit wollen wir dem Rückgang von Zuchttieren bei diesen ursprünglich bayerischen Ziegenrassen wirksam entgegentreten", sagte die Ministerin. Denn obwohl in Bayern die Zahl der Betriebe mit Ziegenhaltung auf 4 900 und die Gesamtzahl der Ziegen auf 36 000 angestiegen sei, haben die Zuchttierbestände dieser drei Ziegenrassen kontinuierlich abgenommen.

Die drei Rassen sind ursprünglich einheimische Züchtungen: Die Bunte Deutsche Edelziege geht auf die Rasse „Frankenziege" mit dem Zuchtgebiet Nordbayern zurück, die Weiße Deutsche Edelziege stammt aus dem Grenzgebiet zwischen Bayern und Hessen und die Thüringer Waldziege war ursprünglich im Grenzgebiet von Thüringen und Bayern bei Neustadt/Saale heimisch. Sie war in den 60er Jahren des vorherigen Jahrhunderts in Bayern ausgestorben, wurde aber nach der Öffnung der innerdeutschen Grenze wieder eingeführt und gezüchtet.

Beim Programm zur Förderung gefährdeter Nutztierrassen gibt es bei den bereits bisher unterstützten Pferderassen „Leutstettener Pferd" und „Rottaler Pferd" künftig auch Fördergelder für Zuchthengste. ■

→ **Weitere Informationen zum Programm gibt es unter www.landwirtschaft.bayern.de (Förderung, Gefährdete Nutztierrassen).**

Gesunde Tiere dank (Un-)Kräutern

Haben Sie noch Erfahrungen mit Kamille, Ringelblume und Co?

Wir suchen nach bäuerlichem Erfahrungswissen in Bayern

Schon seit Menschengedenken werden Pflanzen zur Behandlung und Vorbeugung von Krankheiten bei unseren Nutz- und Haustieren eingesetzt. Ob gezielt gefüttert, als Tee aufgekocht oder in Form von Tinkturen und Salben entfalten die Kräuter ihre Wirkung. Mitte des letzten Jahrhunderts jedoch verdrängten international vertriebene chemisch synthetische Medikamente diese lokalen und traditionell von Generation zu Generation weitergegebenen Therapiemethoden zunehmend. Das Erfahrungswissen – insbesondere das zur Behandlung von Tieren - wurde bisher nördlich der Alpen kaum dokumentiert und es ist zu befürchten, dass es gänzlich in Vergessenheit gerät.

Aber vielleicht - und das ist unsere Hoffnung, sind noch große Teile dieses Wissens vorhanden. Diese gilt es dringend zu sichern!

Erhalten beispielsweise Ihre Kälber bei Durchfallerkrankungen einen Fenchel- oder Kamillentee, oder bereiten Sie noch selbst Ringelblumensalbe für ihre Ziege zu? Kennen Sie jemanden in ihrem Verwandten- oder Freundeskreis, der noch über Erfahrungswissen zur Heilkräuter- und Hausmittelanwendung verfügt?
Dann gehören Sie zum Kreis der Menschen nach denen wir suchen: Bäuerinnen und Bauern, die selbst pflanzliche Arzneien und Hausmittel bei Ihren Tieren anwenden oder sich noch an den Heilkräutereinsatz aus früheren Zeiten erinnern.

Das Forschungsinstitut für biologischen Landbau führt hierzu, in Zusammenarbeit mit dem Lehrstuhl für Innere Medizin und Chirurgie der Wiederkäuer an der LMU München aktuell eine Forschungsarbeit durch. Im Rahmen ihrer Doktorarbeit möchte die frischgebackene Tierärztin und Biobäuerin Theresa Schlittenlacher, Interviews mit Bäuerinnen, Bauern und Menschen aus dem landwirtschaftlichen Umfeld führen, Rezepte sammeln und so das traditionelle Wissen auch für zukünftige Generationen sichern.

Mit den gesammelten Daten wird eine Rezeptsammlung aufgebaut, welche nach Abschluss des Projektes alle Teilnehmer und Teilnehmerinnen kostenlos erhalten.

Gemeinsam können wir so, gerade in Zeiten wachsender Antibiotikaresistenzen, mit dem Wissen der Vergangenheit in der Gegenwart arbeiten und dieses für die Zukunft erhalten.

Möchten auch Sie verhindern, dass Ihr Erfahrungsschatz verloren geht? Sind Sie bereit ihr Wissen mit anderen Landwirten zu teilen und auch für nachkommende Generationen von Tierhaltern weiterzugeben?

Bitte melden Sie sich bei uns. Gerne telefonisch, via E-Mail oder per Post bei:

Theresa Schlittenlacher

E-Mail: theresa.schlittenlacher@fibl.org

Tel.: - - - - - - - - - - - - - - -

Mobil: - - - - - - - - - - - - - -

Oder bei:

Dr. Michael Walkenhorst

Departement für Nutztierwissenschaften

Forschungsinstitut für biologischen Landbau FiBL

Ackerstrasse 113, Postfach 219

5070 Frick, Schweiz

Tel. - - - - - - - - - - - - - -

michael.walkenhorst@fibl.org

Gesunde Tiere dank (Un-)Kräutern

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Theresa Schlittenlacher
- -
E-Mail: theresa.schlittenlacher@fibl.org
Tel.: - - - - - - - - - - -
Mobil: - - - - - - - - -

5. Semi-structured interview questionnaire

Telefon- Protokoll Datum:

Name: Telefonnummer:

Adresse: E- Mail Adresse:

Regierungsbezirk:

- Vorstellen
- Bereits über Projekt informiert? □ Ja □ Nein
- Woher Kontaktadresse?

  _____
- Vorgehen, Interview erläutern, voraussichtliche Dauer
- Bereit Informationen/ Rezepte zu geben/ veröffentlichen? Anonym!
- Aufnahme des Interviews!
- Bitte um Vorbereitung (Notizen..)
- Welche Pflanzen setzen Sie ein?

  _____
  _____
- Mobilnummer geben

Abgemachter Termin:
Zeit (von, bis) :

Bemerkung:

Vereinbart:
□ weiteres Telefonat
□ E-Mail
□ Termin für Interview
□ ……..

Beginn Interview:
Ende Interview:
Dauer Interview:

- Rezeptbuch erhalten

Erlaubnis zur Gesprächsaufnahme:

„Könnten Sie mir bitte mittels Unterschrift noch einmal bestätigen, dass ich das Gespräch aufnehmen und für meine Doktorarbeit anonymisiert verwenden darf."

Ort, Datum…… Unterschrift:……..

Datum: Ort: H

Interviewpartner

Name (A): …… Name (B):……
Geburtsjahr: …… □ w □ m Geburtsjahr: …….. □ w □ m
Beruf: ……. Beruf: ……

Name (C): …… Name (D):……
Geburtsjahr: …… □ w □ m Geburtsjahr:…… □ w □ m
Beruf:…… Beruf:……

Jemals an einem Heilkräuter-Kurs teilgenommen? □ Nein □Ja(……..)
Verwenden Sie Bücher? □ Nein □ Ja (welche): ……

Betrieb Regierungsbezirk …… **m.ü.M.** ……

Bewirtschaftung □ kein Betrieb seit …… □ Biologisch- organisch seit …….
□ Konventionell □ Biologisch- dynamisch seit ……

Betriebsgrösse Landw. Nutzfl. □ 1-5 ha □ 6-10 ha □ 11-15 ha □ 16-25 ha □ ≥ 25 ha
Fruchtfolgefl. □ 1-5 ha □ 6-10 ha □ 11-15 ha □ 16-25 ha □ ≥ 25 ha
Wald □ Ja □ Nein
Landschafts-
pflege: □ Ja □ Nein

Betriebszweig □ Hauptberuflich
Tierhaltung □ Nebenerwerb
□ Hobby

Tiere

Tierarten	*Anzahl aktuell*	*gehalten bis (Jahr)*	*Nie (=x)*	*Hausmittel (x =ja)*
Milchvieh				
Mutterkühe				
Mastrinder				
Aufzuchtrinder				
Mastkälber				
Aufzuchtkälber				
Milchschafe				
Mutterschafe				
Milchziegen				
Mutterziegen				
Pferde				
Zuchtschweine				
Mastschweine				
Bienen				
Kaninchen				
Hunde				
Katzen				
Legehennen				
Mastgeflügel				
……..				

Fragenkatalog
Motivation

E

1. Was bedeutet für Sie der Einsatz von Hausmitteln und Heilkräutern?
   Seit wann beschäftigen Sie sich mit Hausmitteln und Heilkräutern?
   Woher stammt Ihr Wissen über die Verwendung von Heilkräutern?
   Wie kamen Sie auf die Idee Arzneipflanzen einzusetzen?
   Können Sie sich noch am ersten Einsatz erinnern?

2. Was war Ihre Motivation an diesem Projekt teilzunehmen?
   Was hat Sie dazu bewogen, Ihre Zeit für dieses Projekt zu geben?
   Was finden Sie an diesem Projekt gut, sinnvoll?
   Wie sind Sie auf dieses Projekt aufmerksam geworden?

3. Im Rahmen des Projektes geben Sie Ihr Wissen weiter. Wem möge dieses Wissen zu Gute kommen?
   Wem aus Ihrem persönlichen Umfeld möchten Sie Ihr Wissen weitergeben?

Drogen zur Hausmittelherstellung

4. Welche Pflanzen kennen Sie für den Einsatz als Arzneimittel bei Tieren?

5. Kennen Sie käuflich zu erwerbende Kräuterpräparate speziell für Tiere? (z.B. von PlantaVet, Dr. Schaette, Stullmisan (MSD) etc.)

6. Kennen Sie neben Pflanzen andere Möglichkeiten Ihre Tiere ohne Arzneimittel/ Medikamente der klassischen Schulmedizin zu behandeln?
   Kennen Sie nicht-pflanzliche Hausmittel (Rotwein, Apfelessig, Quark, Altöl, Erde, kühlen)?

7. Haben Sie auch schon Homöopathie, Schüsslersalze, Akupunktur o.Ä. bei Tieren eingesetzt?

8. Welche von den genannten Hausmitteln/ Heilkräutern haben Sie schon selbst bei Tieren angewendet?

R/D1

Informant: ..... **1.1 Name Rezeptur**: ..... Codierung: .....

1. Bestandteile □ Einzeldroge □ Mischung (siehe Rückseite): .....

Droge 1

2.1.1 Systematik □ Pflanze □ Alge □ Pilz □Flechten □Moos □Hausmittel.....

2.2.1 Pflanzenname Deutsch: .....
Latein: .....
Pflanzenfamilie: .....

2.3.1 Pflanzenteil □ Ganzpflanze ohne Wurzel (=Kraut) □ Ganzpflanze mit Wurzel
□ Wurzel □ Blüte/ Blütenstand □ Früchte/ Samen/ Beeren
□ Blätter □ Rinde □ Zweige/ Äste □ Andere (Zwiebel, Griffel,...) .....

2.4.1 Verifizierung: □ Herstellerangabe □ Herbarbeleg..... □ Referenzdroge
□ Flora helvetica (immer!) fotografiert ..... □ .....

2.5.1 Herkunft (auch Eintrag bei Hausmittel!)
□ gekauft
2.6.1 Handelsname:.....
2.7.1 Bezugsquelle:.....
□ gesammelt □ angebaut
2.8.1 Standort:.....
Jahreszeit:.....
Tageszeit:.....
Andere Kriterien: .....

2.9.1 Zustandsform □ frisch □ gefroren □ getrocknet □ n.a. □ andere.....
Vorgehen:
.....
.....

2.10.1 Stoffform □ ganz □ Presssaft □ geschnitten □ zerstossen □ pulverisiert/ gemahlen □ n.a. □ andere.....
Vorgehen:
.....
.....
.....

2.11.1 Lösungs-/ Auszugsmittel
□ keine.....
□ Wasser.....
□ Öl/ Fett:.....
□ Alkohol (inkl. Vol.-%):.....
□ Essig:.....
□ andere:.....
2.15.1 Bemerkung Herstellung Extrakt:
.....
.....
.....
2.12.1 Drogen/ Mittelverhältnis (in g/g):
.....
2.13.1 Ansatzdauer (in Tagen).....
2.14.1 Temperatur (°C):.....
2.16.1 Art der Gewichtsermittlung
□ Anwender Originaldroge
□ Anwender Referenzdroge
□ Interviewer Referenzdroge (anhand Volumen)
□ n.a
.....
.....
.....

Zubereitungsgrundlagen
1.2 □ keine.....
□ Salbengrundlage= Auszugsmittel
1.3 □ Vaseline (gelb, weiss)
1.4 □ Paraffin (flüssig/fest)
1.5 □ Wachs:.....
1.6 □ pflanzliches Fett/ Öl: .....
1.7 □ tierisches Fett: .....
1.8 □ Alkohol (inkl. Vol.-%).....
□ andere:.....
Temperatur (°C):.....
Ansatzdauer (in Tagen):.....
1.9 Bemerkung Herstellung Rezept (+ Zusätze) .....
.....
.....
.....
.....

1.10 Haltbarkeit (in Monaten):
.....

1.11 Lagerung
.....

1.12 Ursprung des Wissens der Rezeptur: .....

Z D2

%- Anteil an Mischung	Droge 1 ……	Droge 2 ……	Droge 3 ……	Droge 4 ……	Droge 5 ……

Droge 2

2.1.2 Systematik □ Pflanze □ Alge □ Pilz □Flechten □Moos □Hausmittel……

2.2.2 Pflanzenname Deutsch: ……
Latein: ……
Pflanzenfamilie: ……

2.3.2 Pflanzenteil □ Ganzpflanze ohne Wurzel (=Kraut) □ Ganzpflanze mit Wurzel
□ Wurzel □ Blüte/Blütenstand □ Früchte/ Samen/ Beeren
□ Blätter □ Rinde □ Zweige/ Äste □ Andere (Zwiebel, Griffel,..) ……

2.4.2 Verifizierung: □ Herstellerangabe □ Herbarbeleg…… □ Referenzdroge
□ Flora helvetica (immer!) □ fotografiert …… □ ……

2.5.2 Herkunft (auch Eintrag bei Hausmittel!) □ gekauft □ gesammelt □ angebaut
2.6.2 Handelsname:……
2.7.2 Bezugsquelle:……
2.8.2 Standort:……
Jahreszeit:……
Tageszeit:……
Andere Kriterien: ……

2.9.2 Zustandsform □ frisch □ gefroren Vorgehen:
□ getrocknet □ n.a ……
□ andere…… ……

2.10.2 Stoffform □ ganz □ Presssaft Vorgehen:
□ geschnitten □ zerstossen ……
□ pulverisiert/ gemahlen □ n.a ……
□ andere…… ……

2.11.2 Lösungs-/ Auszugsmittel
□ keine……
□ Wasser……
□ Öl/ Fett:……
□ Alkohol (inkl. Vol.-%):……
□ Essig:……
□ andere:……

2.12.2 Drogen/ Mittelverhältnis (in g/g):
……
2.13.2 Ansatzdauer (in Tagen)……
2.14.2 Temperatur (°C):……

2.15.2 Bemerkung Herstellung Extrakt:
……
……
……

2.16.2 Art der Gewichtsermittlung
□ Anwender Originaldroge
□ Anwender Referenzdroge
□ Interviewer Referenzdroge (anhand Volumen)
□ n.a

X=	Z DX

Droge ☐

2.1.X Systematik ☐ Pflanze ☐ Alge ☐ Pilz ☐Flechten ☐Moos ☐Hausmittel……

2.2.X Pflanzenname Deutsch: ……
Latein: ……
Pflanzenfamilie: ……

2.3.X Pflanzenteil ☐ Ganzpflanze ohne Wurzel (=Kraut) ☐ Ganzpflanze mit Wurzel
☐ Wurzel ☐ Blüte/Blütenstand ☐ Früchte/ Samen/ Beeren
☐ Blätter ☐ Rinde ☐ Zweige/ Äste ☐ Andere (Zwiebel, Griffel,..) ……

2.4.X Verifizierung: ☐ Herstellerangabe ☐ Herbarbeleg…… ☐ Referenzdroge
☐ Flora helvetica (immer!) ☐ fotografiert …… ☐ ……

2.5.X Herkunft (auch Eintrag bei Hausmittel!) ☐ gekauft ☐ gesammelt ☐ angebaut
2.6.X Handelsname:……
2.7.X Bezugsquelle:……
2.8.X Standort:……
Jahreszeit:……
Tageszeit:……
Andere Kriterien: ……

2.9.X Zustandsform ☐ frisch ☐ gefroren ☐ getrocknet ☐ n.a ☐ andere…… Vorgehen: ……

2.10.X Stoffform ☐ ganz ☐ Presssaft ☐ geschnitten ☐ zerstossen ☐ pulverisiert/ gemahlen ☐ n.a ☐ andere…… Vorgehen: ……

2.11.X Lösungs-/ Auszugsmittel ☐ keine…… ☐ Wasser…… ☐ Öl/ Fett:…… ☐ Alkohol (inkl. Vol.-%):…… ☐ Essig:…… ☐ andere:……

2.12.X Drogen/ Mittelverhältnis (in g/g): ……

2.13.X Ansatzdauer (in Tagen)……

2.14.X Temperatur (°C):……

2.15.X Bemerkung Herstellung Extrakt: ……

2.16.X Art der Gewichtsermittlung
☐ Anwender Originaldroge
☐ Anwender Referenzdroge
☐ Interviewer Referenzdroge (anhand Volumen)
☐ n.a

3.1.1 Tierart	□ Rind □ Schaf □ Ziege □ Pferd □ Schwein □ Huhn □ Esel □ Kaninchen □ Hund □ Katze □ n.a □ andere	I 1
3.2.1 Alter	□ alle Altersgruppen □ juvenil mit Milch, Alter: ..... □ juvenil abgesetzt, Alter: ..... □ adult, Alter:..... □ geriatrisch, Alter:.....	
3.3.1 Indikation	(Anwendungseinschränkungen) □ prophylaktisch □ therapeutisch	
3.4.1 Anwendung	□ interne Anwendung □ topische Anwendung □ Umgebungsbehandlung □ n.a	
3.5.1 Anwendung spezifisch	□ orale Eingabe □ oraler Futtermittelzusatz □ Haut allg. □ nasal auf Schleimhaut □ Haut Euter □ Haut Zitze □ nasale Inhalation (Dampf) □ Ohren □ Nabel □ nasale Inhalation (Räuchern) □ Augenbindehaut □ rektal □ Klauen, Hufe, Krallen □ intrazisternal □ Wunde allg. □ Genitalorgane(intravaginal/intrauterin) □ andere.....	
3.6.1 Verab-reichungsart topisch	□ Auftragen □ Kompresse/ Verband/ Wickel □ Auswaschung □ Bad □ n.a □ andere:	
3.7.1 Bemerkungen	(Dauer, Temperatur).....	
3.8.1 Dosierung	(in g pro Anwendung, inkl. Zubereitung)..... .... Verdünnung:..... ..... □ n.a	
3.9.1 Wdh	□ 1x täglich □ 2x täglich □ mehrmals täglich..... □ n.a □ < als 1x täglich..... □	
3.10.1 Dauer der Therapie	(in Tagen/ durchschnittlich)..... □ n.a	
3.11.1 Einsatz Häufigkeit	während den letzten 5 Jahren □ > 10 x □ 6-9 x □ 2-5 x □ einmal □ nie □ n.a □ andere	
3.12.1 Einsatz zuletzt	□ innerhalb der letzten 7 Tagen □ vor 7 Tagen – 4 Wochen □ vor 4 Wochen – 1 Jahr □ vor 1-5 Jahren □ vor 5-10 Jahren □ vor > 10 Jahren (Datum.....) □ noch nie	
3.13.1 Grund Anwendungs-stopp	□ keine Tiere □ keine Zeit □ Aufwand □ Wirkung unbefriedigend □ UAWs □ keine Indikation □ bessere Behandlungsmöglichkeit □ vergessen □ n.a	
3.14.1 UAWs	□ keine □ ja ..... □ n.a	
3.15.1 zusätzlich notwendige Behandlung	□ keine □ n.a □ immer eigene Behandlung..... □ immer Fachperson..... □ teilweise eigene Behandlung (inkl. % Anteil)..... □ teilweise Fachperson (inkl. % Anteil).....	
3.16.1 Ursprung des Wissens	□ Bücher □ Zeitschriften □ Vorfahren □ Bekannte □ Ausbildung/ Weiterbildung □ eigene Erfahrung □ med. Fachperson □ Werbung □ andere □ n.a	
3.17.1 Wirksamkeit	□ nicht beurteilbar.....	

keine Wirkung ——————————— sehr gute Wirkung

3.1.1 Tierart	□ Rind □ Schaf □ Ziege □ Pferd □ Schwein □ Huhn □ Esel □ Kaninchen □ Hund □ Katze □ n.a □ andere .....
3.2.1 Alter	□ alle Altersgruppen □ juvenil mit Milch, Alter: ..... □ juvenil abgesetzt, Alter: ..... □ adult, Alter:..... □ geriatrisch, Alter:.....
3.3.1 Indikation	(Anwendungseinschränkungen) □ prophylaktisch □ therapeutisch ....
3.4.1 Anwendung	□ interne Anwendung □ topische Anwendung □ Umgebungsbehandlung □ n.a
3.5.1 Anwendung spezifisch	□ orale Eingabe □ oraler Futtermittelzusatz □ Haut allg. □ nasal auf Schleimhaut □ Haut Euter □ Haut Zitze □ nasale Inhalation (Dampf) □ Ohren □ Nabel □ nasale Inhalation (Räuchern) □ Augenbindehaut □ rektal □ Klauen, Hufe, Krallen □ intrazisternal □ Wunde allg. □ Genitalorgane(intravaginal/intrauterin) □ andere.....
3.6.1 Verab-reichungsart topisch	□ Auftragen □ Kompresse/ Verband/ Wickel □ Auswaschung □ Bad □ n.a □ andere: .....
3.7.1 Bemerkungen	(Dauer, Temperatur).....
3.8.1 Dosierung	(in g pro Anwendung, inkl. Zubereitung)..... .... Verdünnung:..... ..... □ n.a
3.9.1 Wdh	□ 1x täglich □ 2x täglich □ mehrmals täglich..... □ n.a □ < als 1x täglich..... □ .....
3.10.1 Dauer der Therapie	(in Tagen/ durchschnittlich)..... □ n.a
3.11.1 Einsatz Häufigkeit	während den letzten 5 Jahren □ > 10 x □ 6-9 x □ 2-5 x □ einmal □ nie □ n.a □ andere .....
3.12.1 Einsatz zuletzt	□ innerhalb der letzten 7 Tagen □ vor 7 Tagen – 4 Wochen □ vor 4 Wochen – 1 Jahr □ vor 1-5 Jahren □ vor 5-10 Jahren □ vor > 10 Jahren (Datum.....) □ noch nie
3.13.1 Grund Anwendungs-stopp	□ keine Tiere □ keine Zeit □ Aufwand □ Wirkung unbefriedigend □ UAWs □ keine Indikation □ bessere Behandlungsmöglichkeit □ vergessen □ n.a
3.14.1 UAWs	□ keine □ ja ..... □ n.a
3.15.1 zusätzlich notwendige Behandlung	□ keine □ n.a □ immer eigene Behandlung..... □ immer Fachperson..... □ teilweise eigene Behandlung (inkl. % Anteil)..... □ teilweise Fachperson (inkl. % Anteil).....
3.16.1 Ursprung des Wissens	□ Bücher □ Zeitschriften □ Vorfahren □ Bekannte □ Ausbildung/ Weiterbildung □ eigene Erfahrung □ med. Fachperson □ Werbung □ andere □ n.a ....
3.17.1 Wirksamkeit	□ nicht beurteilbar.....

keine Wirkung ——————————————— sehr gute Wirkung

3.1.1 Tierart	□ Rind □ Schaf □ Ziege □ Pferd □ Schwein □ Huhn □ Esel □ Kaninchen □ Hund □ Katze □ n.a □ andere	Z I X X=
3.2.1 Alter	□ alle Altersgruppen □ juvenil mit Milch, Alter: ..... □ juvenil abgesetzt, Alter: ..... □ adult, Alter:..... □ geriatrisch, Alter:.....	
3.3.1 Indikation	(Anwendungseinschränkungen) □ prophylaktisch □ therapeutisch	
3.4.1 Anwendung	□ interne Anwendung □ topische Anwendung □ Umgebungsbehandlung □ n.a	
3.5.1 Anwendung spezifisch	□ orale Eingabe □ oraler Futtermittelzusatz □ nasal auf Schleimhaut □ nasale Inhalation (Dampf) □ nasale Inhalation (Räuchern) □ rektal □ intrazisternal □ Genitalorgane(intravaginal/intrauterin) □ andere.....	□ Haut allg. □ Haut Euter □ Haut Zitze □ Ohren □ Nabel □ Augenbindehaut □ Klauen, Hufe, Krallen □ Wunde allg.
3.6.1 Verab-reichungsart topisch	□ Auftragen □ Kompresse/ Verband/ Wickel □ Auswaschung □ Bad □ n.a □ andere:	
3.7.1 Bemerkungen	(Dauer, Temperatur).....	
3.8.1 Dosierung	(in g pro Anwendung, inkl. Zubereitung)..... .... Verdünnung:..... ..... □ n.a	
3.9.1 Wdh	□ 1x täglich □ 2x täglich □ mehrmals täglich..... □ n.a □ < als 1x täglich..... □	
3.10.1 Dauer der Therapie	(in Tagen/ durchschnittlich)..... □ n.a	
3.11.1 Einsatz Häufigkeit	während den letzten 5 Jahren □ > 10 x □ 6-9 x □ 2-5 x □ einmal □ nie □ n.a □ andere	
3.12.1 Einsatz zuletzt	□ innerhalb der letzten 7 Tagen □ vor 7 Tagen – 4 Wochen □ vor 4 Wochen – 1 Jahr □ vor 1-5 Jahren □ vor 5-10 Jahren □ vor > 10 Jahren (Datum.....) □ noch nie	
3.13.1 Grund Anwendungs-stopp	□ keine Tiere □ keine Zeit □ Aufwand □ Wirkung unbefriedigend □ UAWs □ keine Indikation □ bessere Behandlungsmöglichkeit □ vergessen □ n.a	
3.14.1 UAWs	□ keine □ ja ..... □ n.a	
3.15.1 zusätzlich notwendige Behandlung	□ keine □ n.a □ immer eigene Behandlung..... □ immer Fachperson..... □ teilweise eigene Behandlung (inkl. % Anteil)..... □ teilweise Fachperson (inkl. % Anteil).....	
3.16.1 Ursprung des Wissens	□ Bücher □ Zeitschriften □ Vorfahren □ Bekannte □ Ausbildung/ Weiterbildung □ eigene Erfahrung □ med. Fachperson □ Werbung □ andere □ n.a	
3.17.1 Wirksamkeit	□ nicht beurteilbar.....	

keine Wirkung ——————————————— sehr gute Wirkung

6. List of use reports of two local historical textbooks

List of abbreviations

General:
na = information not available

Animal species:
na = information not available = authors recommended it in general (e.g." for the young stock")

Recipe Type:
HSHR = homemade single herbal remedy
MHSHR = mixed homemade single herbal remedy (consisting of one plant species + natural substances)

Plant part:
bar = bark
bul = bulbus
flo = flowers and inflorescences
fsb = fruits, seeds, berries
her = whole plants without roots (herb)
lea = leaves
rot = roots, tuber
twb = twigs, branches, branch tips

Animal age:
juv = juvenil
ad = adult (named accurately or out of the context it is evident, that the authors mean adult animals)
all = all animal ages (it is evident out of the context)

ATC vet Code:

QN = behavior (nervous system)
QA = gastrointestinal disorders and metabolic dysfunctions
QG = infertility and diseases of female genitals
QG52 = mastitis
QM = musculoskeletal system
QP = parasites
QR = respiratory tract diseases
QS = sensory organ
QD = skin alterations and sores
GS = general strengthening
QV = various indications

Daily dosage [g/kg$^{0.75}$]

in plant equivalent per kg metabolic body weight [g/kg$_{0.75}$]; used in formulations for oral administration only;

Conc [g/100g]
Concentration [g drug in 100g finished product]; used in formulations for topical treatment and intravaginal/ intrauterine administration;
da = directly administered without extraction, external administration;

Extraction procedure on farm:
none
wat: (rt) = water room temperature, (dec) = water decoction, (inf) = water infusion
alc: (rt) = room temperature, (et) = elevated temperature
vinegar: (rt) = room temperature, (dec) = decoction
salt, honey, cream, fat, oil

Administration
exal= external administration, altered or sore skin
exin= external administration, intact skin

(epi) = epicutan
(top) = topical
(wash) = wash out
(dre) = dressing/ bandage
(konj) = konjunktival

Int = internal administration
(oral)
(inh) = inhalation
(rec) = rectal
(vaut) = intravaginal/ intrauterine

Botanical family	*Plant species*	Plant part	original recipe name	Indication	Extraction	Admi-nistra-tion	ATC vet Code	Animal species	Animal age	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	Comment	Effect	Recipe Type	Autor	Page
Alga	*Alga*	na	Seetang	strangles	none	int (oral)	QR	horse	ad	na		na	na	HSHR	Zipperlen (1959)	148
Accoraceae	*Acorus calamus L.*	rot	Kalmuswurzel-abkochung	equine contagious pleuro-pneumonia	water (dec)	int (oral)	QR	horse	ad	0.078		to reduce fever, if above 40.5 degrees	na	HSHR	Zipperlen (1959)	146
		na	Kalmustee	colic	water (inf)	int (oral)	QA	cattle	ad	0.117		after 4h without improve-ment, call vet	na	HSHR	Zipperlen (1959)	294
		rot	Kalmus	gastroenteritis	none	int (oral)	QA	sheep	ad	0.185		na	na	HSHR	Zipperlen (1959)	388
		na	Kalmus	rickets	none	int (oral)	QA	cattle	juv	na		na	use as support	HSHR	Mangold, Reicherter	905
		na	Kalmus	rickets	none	int (oral)	QA	sheep	juv	na		na	use as support	HSHR	Mangold, Reicherter	905
Adoxaceae	*Sambucus nigra* L.	flo	Holunder-blütentee	chest founder	water (inf)	int (oral)	QR	horse	ad	na		na	na	HSHR	Zipperlen (1959)	147
		flo	Holunder-blütentee	fagopyrism	water (inf)	exal (wash)	QD	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	373
		fsb	Holundertee	quinsy	water (inf)	int (inh)	QR	dog	ad	na		na	na	HSHR	Zipperlen (1959)	574
		na	Holundertee	nephritis	water (inf)	int (oral)	QG	dog	ad	na		as support in addition to the vet	na	HSHR	Zipperlen (1959)	579
Amaryllidaceae	*Allium cepa* L.	bul	Zwiebel	gastrointestina l worms	water (rt)	int (oral)	QP	horse	ad	0.778		na	only for weak infesta-tion	HSHR	Zipperlen (1959)	224
Apiaceae	*Angelica archangelica* L.	rot	Engelwurz	indigestion	none	int (oral)	QA	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	310
		na	Engelwurz	rickets	none	int (oral)	QA	cattle	juv	na		na	use as support	HSHR	Mangold, Reicherter	905

Botanical family	*Plant species*	Plant part	original recipe name	Indication	Extraction	Admi-nistra-tion	ATC vet Code	Animal species	Animal age	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	Comment	Effect	Recipe Type	Autor	Page
		na	Engelwurz	rickets	none	int (oral)	QA	sheep	juv	na		na	use as support	HSHR	Mangold, Reicherter	905
	Carum carvi L.	fsb	Kümmelsamen	tympanism in calves	none	int (oral)	QA	cattle	juv	0.466		na	na	MHSHR	Mangold, Reicherter	679
		fsb	Kümmel	addicted to licking	none	int (oral)	QA	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	299
	Daucus carota L.	rot	Mohrrüben	gastrointesti-nal worms	none	int (oral)	QP	horse	juv	38.85		na	only for weak infesta-tion	HSHR	Zipperlen (1959)	224
		rot	rohe Möhren	indigestion and gastrointes-tinal worms	none	int (oral)	QP	pig	ad	na		na	na	HSHR	Zipperlen (1959)	456
		rot	Mohrrüben-brei	vitamin A deficiency	none	int (oral)	QA	hen	ad	na		na	na	HSHR	Zipperlen (1959)	530
	Foeniculum vulgare Mill.	fsb	Fencheltee	loss of appetite	water (inf)	int (oral)	QA	goat	ad	na		na	na	HSHR	Zipperlen (1959)	417
		fsb	Fencheltee	tympanism	water (inf)	int (oral)	QA	rabbit	ad	na		na	na	HSHR	Zipperlen (1959)	542
	Levisticum officinale W.D.J.Koch	rot	Liebstöckeltee	urinary retention	water (inf)	int (oral)	QG	horse	ad	na		na	na	HSHR	Zipperlen (1959)	164
	Petroselinum crispum (Mill.) Fuss	lea	Petersilien-blättertee	moon blindness	water (inf)	exin (konj)	QS	horse	ad		na	na	na	HSHR	Zipperlen (1959)	184
		fsb	Petersilien-samenaufguss	sucking lice	water (inf)	exal (wash)	QP	dog	ad		13%	na	na	HSHR	Zipperlen (1959)	589
	Peucedanum ostruthium (L.) W.D.J.Koch	rot	Meisterwurz-tee	malignant catharral fever	water (inf)	int (oral)	QR	cattle	ad	0.311		na	na	HSHR	Zipperlen (1959)	290
	Pimpinella anisum L.	fsb	Anisöl	fly repellent	na	exin (epi)	QP	cattle	ad		na	na	na	HSHR	Mangold, Reicherter	95
		fsb	Anisöl	fly repellent	na	exin (epi)	QP	horse	ad		na	na	na	HSHR	Mangold, Reicherter	95
		fsb	Anis	milk boosting agent	none	int (oral)	GS	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	309

Botanical family	*Plant species*	Plant part	original recipe name	Indication	Extraction	Admi-nistra-tion	ATC vet Code	Animal species	Animal age	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	Comment	Effect	Recipe Type	Autor	Page
	Sanicula europaea L.	her	Sanikelkraut	wounds	honey	exal (epi)	QD	horse	ad		na	na	na	MHSHR	Zipperlen (1959)	222
Asparagaceae	*Urginea (Scilla, Drimia) maritima* L.	na	Meerzwiebel-pulver	abdominal dropsy ascites	none	int (oral)	QV	cattle	ad	0.155 - 0.233		na	na	HSHR	Mangold, Reicherter	696
		na	Meerzwiebel-pulver	abdominal dropsy ascites	none	int (oral)	QV	horse	ad	0.155 - 0.233		na	na	HSHR	Mangold, Reicherter	696
		na	Meerzwiebel-pulver	thoracal dropsy ascites	none	int (oral)	QR	dog	ad		3%	na	na	HSHR	Mangold, Reicherter	712
Asteraceae	*Achillea millefolium* L.	her	Schafgarbe	fly repellent	water (dec)	exin (epi)	QP	cattle	ad		na	na	na	HSHR	Mangold, Reicherter	95
		her	Schafgarbe	fly repellent	water (dec)	exin (epi)	QP	horse	ad		na	na	na	HSHR	Mangold, Reicherter	95
		her	Schafgarben-abkochung	hoof cartilage fistula	water (dec)	exal (wash)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	171
		her	Schafgarben-tee	colic	water (inf)	int (oral)	QA	cattle	ad	0.389		after 4h without improve-ment, call vet	na	HSHR	Zipperlen (1959)	294
		her	Schafgarben-tee	addicted to licking	water (inf)	int (oral)	QA	cattle	ad	0.389		na	na	HSHR	Zipperlen (1959)	299
		her	Schafgarbe	milk boosting agent	none	int (oral)	GS	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	309
	Arctium lappa L.	rot	Klettenwurzel-abkochung	rash	water (dec)	exal (wash)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	163
		rot	Klettenwurzel-abkochung	hoof cartilage fistula	water (dec)	exal (wash)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	171
		na	Klettenwurzel-salbe	capped hock	fat	exal (epi)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	192
		na	Klettenwurzel-salbe	abrasion	fat	exal (epi)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	197
		na	Klettenwurzel-abkochung	ringworm	water (dec)	exal (wash)	QD	cattle	juv		na	na	na	HSHR	Zipperlen (1959)	273
	Arnica montana L.	flo	Arnikatinktur	urinary retention	water (rt)	exal (wash)	QG	horse	ad		na	na	na	HSHR	Zipperlen (1959)	164

Botanical family	*Plant species*	Plant part	original recipe name	Indication	Extraction	Admi-nistra-tion	ATC vet Code	Animal species	Animal age	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	Comment	Effect	Recipe Type	Autor	Page
		flo	Arnikatinktur	thrush	alc (rt)	exal (wash)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	210
		na	Arnikatinktur	tongue injury	water (rt)	exal (epi)	QD	horse	ad		9.1%	na	na	HSHR	Zipperlen (1959)	226
		flo	Arnikatinktur	burns	alc (rt)	exal (epi)	QD	na	all		na	na	na	HSHR	Mangold, Reicherter	935
		flo	Arnikatinktur	acid etching	alc (rt)	int (oral)	QD	na	all	na		na	na	HSHR	Mangold, Reicherter	936
		flo	Arnikatinktur	acid etching	alc (rt)	exal (epi)	QD	na	all		na	na	na	HSHR	Mangold, Reicherter	936
		flo	Arnica	ear hematoma	water (rt)	exin (wash)	QD	dog	ad		na	na	na	HSHR	Mangold, Reicherter	960
	Artemisia absinthium L.	na	Wermut-aufguss	blue milk	water (inf)	int (oral)	QA	cattle	ad	na		na	na	MHSHR	Zipperlen (1959)	313
		her	Wermut	anaemia	none	int (oral)	QB	sheep	all	na		na	na	HSHR	Zipperlen (1959)	371
		her	Wermuttee	overloaded stomach/ rumen	none	int (oral)	QA	goat	ad	na		na	na	HSHR	Zipperlen (1959)	424
		her	Wermuttee	gastroenteritis	water (inf)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Mangold, Reicherter	671
		her	Wermuttee	gastroenteritis	water (inf)	int (oral)	QA	horse	ad	na		na	na	HSHR	Mangold, Reicherter	671
		her	Wermuttee	indigestion	water (inf)	int (oral)	QA	cattle	ad	na		na	na	MHSHR	Mangold, Reicherter	674
	Calendula officinalis L.	flo	Ringelblumen-abkochung	rash	water (dec)	exal (epi)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	163
		na	Ringelblumen	wounds	fat	exal (epi)	QD	horse	ad		16.7%	na	na	HSHR	Zipperlen (1959)	222
		flo	Ringelblumen-abkochung	ringworm	water (dec)	exal (wash)	QD	cattle	juv		na	na	na	HSHR	Zipperlen (1959)	273
	Carthamus tinctorius L.	her	Disteln	loss of apetitte	none	int (oral)	QA	pig	ad	na		na	na	HSHR	Zipperlen (1959)	451
	Centaurea benedicta L.	her	Benedikten-kraut	petechial fever	water (inf)	exin (wash)	QV	horse	ad		3%	na	na	HSHR	Zipperlen (1959)	191

Botanical family	*Plant species*	Plant part	original recipe name	Indication	Extraction	Admi-nistra-tion	ATC vet Code	Animal species	Animal age	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	Comment	Effect	Recipe Type	Autor	Page
		her	Benedikten-krauttee	Gastrointesti-nal worms	water (inf)	int (oral)	QP	horse	ad	0.233		na	only for weak infestation	HSHR	Zipperlen (1959)	224
		her	Benedikten-krauttee	carpal hygroma	water (inf)	exal (dre)	QM	cattle	all		3%	if not successful, call the vet	na	HSHR	Zipperlen (1959)	292
	Eupatorium cannabinum L.	rot	Wurzelstöcke des Wasserdosts	chest founder	none	int (oral)	QR	horse	ad		2%	na	na	HSHR	Zipperlen (1959)	147
	Inula helenium L.	rot	Alantwurzel-abkochung	nephritis	water (inf)	int (oral)	QG	cattle	ad	0.233		na	na	HSHR	Zipperlen (1959)	318
	Juniperus communis L.	flo	Kamillentee	diarrhoeaa	water (inf)	int (oral)	QA	sheep	ad	na		na	na	MHSHR	Zipperlen (1959)	374
	Matricaria recutita L.	flo	Kamillen-inhalation	strangles	water (inf)	int (inh)	QR	horse	ad	na		na	na	HSHR	Zipperlen (1959)	148
		flo	Kamillentee	diarrhoea	water (inf)	int (oral)	QA	horse	ad	na		na	na	HSHR	Zipperlen (1959)	150
		flo	Kamillentee	colic	water (inf)	int (oral)	QA	horse	ad	na		na	na	MHSHR	Zipperlen (1959)	177
		flo	Kamillentee	abrasion	water (inf)	exal (wash)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	197
		flo	Kamillentee	colic	water (inf)	int (oral)	QA	cattle	ad	0.233		after 4h without improve-ment, call vet	na	HSHR	Zipperlen (1959)	294
		flo	Kamillentee-klistir	lumbago	water (inf)	int (rec)	QM	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	295
		flo	Kamillentee	FMD	water (inf)	exal (wash)	QD	cattle	ad		na	for local relief in the oral cavity	na	HSHR	Zipperlen (1959)	306
		flo	Kamillentee	nephritis	water (inf)	int (oral)	QG	cattle	ad	0.233		na	na	HSHR	Zipperlen (1959)	318
		flo	Kamillen-umschläge	rheumatism	water (inf)	exin (epi)	QM	cattle	ad		na	na	na	HSHR	Zipperlen (1959)	323

Botanical family	*Plant species*	Plant part	original recipe name	Indication	Extraction	Admi-nistra-tion	ATC vet Code	Animal species	Animal age	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	Comment	Effect	Recipe Type	Autor	Page
		flo	Kamillentee	intoxication	water (inf)	int (oral)	QA	cattle	all	na		na	na	HSHR	Zipperlen (1959)	339
		flo	Kamillentee	fagopyrism	water (inf)	exal (wash)	QD	sheep	ad		na	na	na	HSHR	Zipperlen (1959)	373
		flo	Kamillentee	nutritional muscular dystrophy	water (inf)	int (oral)	QM	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	383
		flo	Kamillentee	loss of appetite	water (inf)	int (oral)	QA	goat	ad	na		in the initial stage	na	MHSHR	Zipperlen (1959)	417
		flo	Kamillentee	loss of appetite with tympania	water (inf)	int (oral)	QA	goat	ad	na		na	na	MHSHR	Zipperlen (1959)	417
		flo	Kamillentee	diarrhoeaa	water (inf)	int (oral)	QA	goat	ad	na		na	na	MHSHR	Zipperlen (1959)	419
		flo	Kamillentee	zinc intoxication	water (inf)	int (oral)	QV	pig	ad	na		until the arrival of the vet	na	HSHR	Zipperlen (1959)	483
		flo	Kamillentee	cold	water (inf)	int (oral)	QR	rabbit	ad	na		na	na	HSHR	Mangold, Reicherter	520
		flo	Kamillentee	ophtalmitis	water (inf)	exin (konj)	QS	rabbit	ad		na	na	na	HSHR	Zipperlen (1959)	542
		flo	Kamillentee	diarrhoeaa	water (inf)	int (oral)	QA	dog	ad	na		na	na	HSHR	Zipperlen (1959)	571
		flo	Kamillentee	cystitis	water (inf)	int (oral)	QG	dog	ad	na		na	na	HSHR	Zipperlen (1959)	570
		flo	Kamillentee	constipation	water (inf)	int (oral)	QA	dog	ad	na		na	na	HSHR	Zipperlen (1959)	590
		na	Kamillen-aufguss	colic	water (inf)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Mangold, Reicherter	686
		na	Kamillen-aufguss	colic	water (inf)	int (oral)	QA	sheep	ad	na		na	na	HSHR	Mangold, Reicherter	686
		na	Kamillen-aufguss	colic	water (inf)	int (oral)	QA	goat	ad	na		na	na	HSHR	Mangold, Reicherter	686

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	Solidago virgaurea L.	her	Goldruten-kraut	wounds (painful, purulent)	none	exal (dre)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	222
	Tanacetum vulgare L.	na	Rainfarnpulver	gastrointestinal worms	none	int (oral)	QP	horse	ad	0.117 - 0.35		na	only for weak infestation	HSHR	Zipperlen (1959)	224
		na	Rainfarnabkochungssalbe	scaly leg of fowl	fat	exal (epi)	QD	hen	ad		9.1%	na	na	HSHR	Zipperlen (1959)	511
	Tussilago farfara L.	lea	Huflattich-blättertee	chest founder	water (inf)	int (oral)	QR	horse	ad	na		na	na	HSHR	Zipperlen (1959)	147
Brassicaceae	*Armoracia rusticana* G.Gaertn., B.Mey. & Scherb.	rot	Meerrettich	rickets	none	int (oral)	QM	cattle	juv	na		na	na	MHSHR	Zipperlen (1959)	293
	Brassica rapa L. *subvar. Esculenta*	na	Rüböl	antidote for poisoning by pungent plants	none	int (oral)	QA	na	ad	na		na	na	HSHR	Mangold, Reicherter	689
	Capsella bursa- pastoris (L.) Medik.	her	Hirtentäschel-krauttee	parturient paresis	water (inf)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	274
		her	Hirtentäschel-krauttee	overloaded rumen, ketose	none	int (oral)	QA	cattle	ad	0.233		na	na	MHSHR	Zipperlen (1959)	320
	Sinapis alba L.	fsb	Senföl	pneumonia	none	exin (epi)	QR	horse	ad		3%	na	na	HSHR	Zipperlen (1959)	183
Burseraceae	*Commiphora myrrha* (T.Ness) Engl.	na	Myrrhe Tinktur	thrush	alc (rt)	exal (epi)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	210
Cannabaceae	*Cannabis sativa* L.	fsb	Hanfsamen	diarrhoea	none	int (oral)	QA	cattle	juv	na		na	na	HSHR	Mangold, Reicherter	678
Caprifoliaceae	*Valeriana officinalis* L.	na	Baldriantee	meningitis	water (inf)	int (oral)	QN	horse	ad	0.233		na	na	HSHR	Zipperlen (1959)	158
		na	Baldriantee	lumbago	water (inf)	int (oral)	QM	horse	ad	na		na	na	HSHR	Zipperlen (1959)	179
		na	Baldriantee	lumbago	water (inf)	int (oral)	QM	cattle	ad	0.233		if not successful in the first 3 days, call the vet	na	HSHR	Zipperlen (1959)	295

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		na	Baldriantee	rheumatism	water (inf)	int (oral)	QM	cattle	ad	0.117		na	na	HSHR	Zipperlen (1959)	323
		na	Baldriantee	abortion	water (inf)	int (oral)	QG	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	342
		na	Baldriantinktur	nutritional muscular dystrophy	none	int (oral)	QM	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	383
		na	Baldrian-aufguss	colic	water (inf)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Mangold, Reicherter	686
		na	Baldrian-aufguss	colic	water (inf)	int (oral)	QA	sheep	ad	na		na	na	HSHR	Mangold, Reicherter	686
		na	Baldrian-aufguss	colic	water (inf)	int (oral)	QA	goat	ad	na		na	na	HSHR	Mangold, Reicherter	686
Crassulaceae	*Sempervivum tectorum* L.	lea	Hauswurz-blätter	surface wounds	none	exal (epi)	QD	horse	ad		da	na	na	HSHR	Zipperlen (1959)	222
Cupressaceae	*Juniperus communis* L.	fsb	Wacholder-beeren-abkochung	rash	water (dec)	int (oral)	QD	horse	ad	0.389		na	na	MHSHR	Zipperlen (1959)	163
		fsb	Wacholder-beeren	chronic hepatitis	salt	int (oral)	QA	horse	ad	0.175		na	na	HSHR	Zipperlen (1959)	181
		fsb	Wacholder-beeren	eiternde wounds	water (dec)	exal (wash)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	222
		fsb	Wacholder-beeren	addicted to licking	salt	int (oral)	QA	cattle	ad	na		na	na	MHSHR	Zipperlen (1959)	299
		fsb	Wacholder-beeren	wool eating syndrome	none	int (oral)	QN	sheep	ad	0.185 - 0.37		na	na	HSHR	Zipperlen (1959)	363
		fsb	Wacholder-beeren	anaemia	none	int (oral)	QB	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	371
		fsb	Wacholder-beeren	diarrhoeaa	none	int (oral)	QA	rabbit	ad	na		na	na	HSHR	Mangold, Reicherter	521
		fsb	Wacholder-beerenpulver	meningitis	none	int (oral)	QV	cattle	ad	2.331 - 3.5		na	na	HSHR	Mangold, Reicherter	660
		fsb	Wacholder-beerenpulver	meningitis	none	int (oral)	QV	sheep	ad	5.556 - 8.333		na	na	HSHR	Mangold, Reicherter	660

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		fsb	Wacholder-beermehl	liver flukes	none	int (oral)	QP	sheep	ad	na		na	na	HSHR	Mangold, Reicherter	694
		fsb	Wachholder-beerpulver	abdominal dropsy ascites	none	int (oral)	QV	cattle	ad	0.155 - 0.311		na	na	HSHR	Mangold, Reicherter	696
		fsb	Wachholder-beerpulver	abdominal dropsy ascites	none	int (oral)	QV	horse	ad	0.155 - 0.311		na	na	HSHR	Mangold, Reicherter	696
		fsb	Wachholder-beermehl	Hydroperi-cardium, hydrocardia	none	int (oral)	QC	horse	ad	2.331		na	na	HSHR	Mangold, Reicherter	698
		fsb	Wacholder-mehl	horse pox (in sheep)	none	int (oral)	QV	sheep	ad	0.1852		na	use as support	MHSHR	Mangold, Reicherter	759
	Thuja occidentalis L.	na	Thuja Tinktur	warts	none	exal (epi)	QD	horse	all		16.7%	na	na	HSHR	Zipperlen (1959)	220
		na	Thuja	warts	none	exal (epi)	QD	cattle	all		da	only as support in addition to the vet	na	HSHR	Zipperlen (1959)	347
		na	Thuja Tinktur	warts	alc (rt)	exal (epi)	QD	na	all		na	na	na	HSHR	Mangold, Reicherter	940
Curcubitaceae	*Cucurbita pepo* L.	fsb	Kürbiskerne	gastrointestina l worms	none	int (oral)	QP	pig	ad	0.376 - 0.752		in mild cases	na	HSHR	Zipperlen (1959)	456
Ericaceae	*Arctostaphylos uva-ursi* (L.) Spreng.	lea	Bärentrauben-blättertee	urinary retention	water (inf)	int (oral)	QG	horse	ad	na		na	na	HSHR	Zipperlen (1959)	164
	Erica L.	her	Heidekraut	wool eating syndrome	none	int (oral)	QN	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	363
	Vaccinium myrtillus L.	fsb	Heidelbeeren	diarrhoea	none	int (oral)	QA	horse	ad	na		na	na	HSHR	Zipperlen (1959)	150
		fsb	Heidelbeeren	diarrhoea	none	int (oral)	QA	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	374
		fsb	Heidelbeeren	diarrhoea	none	int (oral)	QA	rabbit	ad	na		na	na	HSHR	Mangold, Reicherter	521
Euphorbiaceae	*Mallotus philippinensis* (Lam.)Müll.Arg.	fsb	Kamala	Gastrointesti-nal worms	none	int (oral)	QP	dog	ad	0.089 - 0.357		na	na	HSHR	Zipperlen (1959)	572
	Ricinus communis L.	na	Rizinusöl	constipation in newborns	none	int (oral)	QA	horse	juv		50%	na	na	HSHR	Zipperlen (1959)	219

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		na	Rizinusöl	lupines disease	none	int (oral)	QA	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	340
		na	Rizinusöl	constipation	none	int (oral)	QA	goat	ad	na		na	na	HSHR	Zipperlen (1959)	429
		na	Rizinusöl	salpingitis	none	int (oral)	QG	hen	ad	na		na	na	HSHR	Zipperlen (1959)	504
		na	Rizinusöl	constipation	none	int (oral)	QA	rabbit	ad	na		na	na	HSHR	Zipperlen (1959)	548
		na	Rizinusöl	loss of apetitte	none	int (oral)	QA	dog	ad	na		na	na	HSHR	Zipperlen (1959)	569
		na	Rizinusöl	constipation	none	int (oral)	QA	dog	ad	na		na	na	HSHR	Zipperlen (1959)	590
		na	Rizinusöl	colic	none	int (oral)	QA	dog	ad	na		na	na	HSHR	Mangold, Reicherter	686
Fabaceae	*Melilotus* L.	flo	Steinklee-blütentee	cold	water (inf)	int (oral)	QR	horse	ad	0.35		na	na	HSHR	Zipperlen (1959)	161
		flo	Steinklee-blütentee	petechial fever	water (inf)	exin (wash)	QV	horse	ad		na	na	na	HSHR	Zipperlen (1959)	191
	Ononis spinosa L.	na	Hauhechel-abkochung	hoof cartilage fistula	water (dec)	exal (wash)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	171
Fagaceae	*Quercus robur* L.	bar	Eichenrinden-pulver	diarrhoea	none	int (oral)	QA	horse	ad	0.155		na	na	HSHR	Zipperlen (1959)	150
		bar	Eichenrinden-abkochung	lumbago	water (dec)	exin (wash)	QM	horse	ad		na	na	na	MHSHR	Zipperlen (1959)	152
		bar	Eichenrinden-abkochung	hoof cartilage fistula	water (dec)	exal (wash)	QM	horse	ad		na	only as support in addition to the vet	na	HSHR	Zipperlen (1959)	171
		bar	Eichenrinden-abkochung	rectum prolapse	water (dec)	exin (wash)	QA	horse	ad		0.5%	na	na	HSHR	Zipperlen (1959)	186
		bar	Eichenrinden-pulver	pastern dermatitis	none	exal (epi)	QD	horse	ad		da	na	na	HSHR	Zipperlen (1959)	188
		bar	Eichenrinden-abkochung	thrush	water (dec)	exal (epi)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	210

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		bar	Eichenrinden-abkochung	diarrhoea (with haemoglobinuria)	water (dec)	int (oral)	QA	cattle	all	na		na	na	HSHR	Zipperlen (1959)	266
		bar	Eichenrinden-abkochung	FMD	water (dec)	exal (wash)	QD	cattle	ad		na	for local relief in the oral cavity	na	HSHR	Zipperlen (1959)	306
		bar	Eichenrinden-abkochung	hard milking	water (dec)	exin (wash)	QG52	cattle	ad		na	na	na	HSHR	Zipperlen (1959)	315
		bar	Eichenrinden-pulver	diarrhoea after poisoning	water (dec)	int (oral)	QA	cattle	ad	0.233 - 0.35		na	na	HSHR	Zipperlen (1959)	339
		bar	Eichenrinde	Entero-haemorrhage	water (dec)	int (rec)	QA	goat	ad	1.481		na	na	HSHR	Zipperlen (1959)	418
		bar	Eichenrinden-abkochung	diarrhoea after poisoning	water (dec)	int (oral)	QA	hen	ad	na		as first aid	na	HSHR	Zipperlen (1959)	529
		bar	Eichenrinden-tee	diarrhoea	water (inf)	int (oral)	QA	rabbit	ad	na		na	na	HSHR	Zipperlen (1959)	542
		bar	Eichenrinden-pulver	acute gastroenteritis	none	int (oral)	QA	cattle	ad	0.583		na	na	HSHR	Mangold, Reicherter	671
		bar	Eichenrinden-pulver	acute gastroenteritis	none	int (oral)	QA	horse	ad	0.583		na	na	HSHR	Mangold, Reicherter	671
		bar	Eichenrinden-pulver	diarrhoea	none	int (oral)	QA	na	ad		4.8%	na	na	HSHR	Mangold, Reicherter	687
		bar	Eichenrinden-sud	antidote for intoxication by narcotic poisons	water (dec)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690
		bar	Eichenrinden-abkochung	poisoning by lead and fine salts	water (dec)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690
		bar	Eichenrinden-abkochung	poisoning by copper salts	water (dec)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690
		bar	Eichenrinden-abkochung	poisoning by Strichnin, Morphine and Opium	water (dec)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690

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		bar	Eichenrinden-abkochung	urinary incontinence	water (dec)	int (vaut)	QG	na	all	na		not effective if bladder stones are the cause	na	HSHR	Mangold, Reicherter	714
		bar	Eichenrinden-abkochung	Haemoglobin-uria	water (dec)	int (oral)	QG	na	ad	na		na	na	HSHR	Mangold, Reicherter	718
		bar	Eichenrinden-abkochung	sprain	water (dec)	exin (epi)	QM	na	ad		na	na	to prevent weakness (which otherwise becomes chronic)	HSHR	Mangold, Reicherter	907
		bar	Eichenrinden-abkochung	frostbite	water (dec)	exal (epi)	QD	na	all		na	na	na	HSHR	Mangold, Reicherter	936
Gentianaceae	*Gentiana lutea* L.	rot	Enzianwurzel-pulver	gastroenteritis	none	int (oral)	QA	sheep	ad	0.185		na	na	HSHR	Zipperlen (1959)	388
		rot	Enzianwurzel	indigestibility	none	int (oral)	QA	cattle	ad	na		na	na	MHSHR	Mangold, Reicherter	674
		na	Enzian	rickets	none	int (oral)	QA	cattle	juv	na		na	use as support	HSHR	Mangold, Reicherter	905
		na	Enzian	rickets	none	int (oral)	QA	sheep	juv	na		na	use as support	HSHR	Mangold, Reicherter	905
Hypericaceae	*Hypericum perforatum* L.	na	Johannisöl	wounds	oil	exal (dre)	QD	horse	all		na	na	na	HSHR	Zipperlen (1959)	222
Juglandaceae	*Juglans regia* L.	lea	Nussblätter	fly repellent	water (dec)	exin (epi)	QP	cattle	ad		na	na	na	HSHR	Mangold, Reicherter	95
		lea	Nussblätter	fly repellent	water (dec)	exin (epi)	QP	horse	ad		na	na	na	HSHR	Mangold, Reicherter	95
		fsb	Walnusstinktur	windgall	alc (rt)	exin (epi)	QM	horse	ad		9.1%	na	na	HSHR	Zipperlen (1959)	157
		lea	Walnussblätter-bad	claw ulcer	water (dec)	exal (wash)	QD	cattle	ad		na	until the arrival of the vet	na	HSHR	Zipperlen (1959)	291

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Krameriaceae	*Krameria lappacea* (Dombey) Burdet u B.B. Simpson	rot	Ratanthia-wurzel	Entero-haemorrhage	water (dec)	int (oral)	QA	goat	ad	0.185 - 0.37		na	na	HSHR	Zipperlen (1959)	418
Lamiaceae	*Glechoma hederacea* L.	her	Gundelreben-kraut	ulcers	alc (et)	exal (wash)	QV	horse	ad		na	na	na	MHSHR	Zipperlen (1959)	160
	Lavandula angustifolia Mill.	flo	Lavendel-blütentee	petechial fever	water (inf)	exin (wash)	QV	horse	ad		na	na	na	HSHR	Zipperlen (1959)	191
	Melissa officinalis L.	lea	Melissentee	parturient paresis	water (inf)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	274
	Mentha x piperita L.	na	Pfefferminztee	parturient paresis	water (inf)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	274
		na	Pfefferminztee	equine contagious pleuropneumonia	water (inf)	int (oral)	QR	horse	ad	na		to reduce fever, if above 40.5 degrees	na	HSHR	Zipperlen (1959)	146
		her	Pfefferminztee	loss of appetite	water (inf)	int (oral)	QA	goat	ad	na		na	na	MHSHR	Zipperlen (1959)	417
		her	Pfefferminztee	overloaded stomach/ rumen	none	int (oral)	QA	goat	ad	na		na	na	HSHR	Zipperlen (1959)	424
		her	Pfefferminztee	tympanism	water (inf)	int (oral)	QA	rabbit	ad	na		na	na	HSHR	Zipperlen (1959)	542
		her	Pfefferminztee	acute gastroenteritis	water (inf)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Mangold, Reicherter	671
		her	Pfefferminztee	acute gastroenteritis	water (inf)	int (oral)	QA	horse	ad	na		na	na	HSHR	Mangold, Reicherter	671
		her	Pfefferminztee	indigestibility	water (inf)	int (oral)	QA	cattle	ad	na		na	na	MHSHR	Mangold, Reicherter	674
		her	Pfefferminz-aufguss	colic	water (inf)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Mangold, Reicherter	686
		her	Pfefferminz-aufguss	colic	water (inf)	int (oral)	QA	sheep	ad	na		na	na	HSHR	Mangold, Reicherter	686
		her	Pfefferminz-aufguss	colic	water (inf)	int (oral)	QA	goat	ad	na		na	na	HSHR	Mangold, Reicherter	686

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	Oreganum majorana L.	her	Majoran-Wundsalbe	ulcers	fat	exal (epi)	QV	horse	ad		50%	na	na	HSHR	Zipperlen (1959)	160
	Rosmarinus officinalis L.	na	Rosmarinsalbe	moon blindness	fat	exin (konj)	QS	horse	ad		na	na	na	HSHR	Zipperlen (1959)	184
	Salvia officinalis L.	na	Salbeitee	cold	water (inf)	int (oral)	QR	horse	ad	na		na	na	HSHR	Zipperlen (1959)	175
		lea	Salbeiblätter-abkochung	trush	water (dec)	exal (wash)	QD	cattle	ad		na	na	na	HSHR	Zipperlen (1959)	304
	Thymus vulgaris L.	her	Thymiantee	abrasion	water (inf)	exal (wash)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	197
Lauraceae	*Cinnamomum camphora* (L.)J.Presl.	na	Kampfer-spiritus	permanent thickening after phlegmon	alc (rt)	exal (epi)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	152
		na	Kampfersalbe	permanent thickening after phlegmon	fat	exal (epi)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	152
		na	Kampfer-spiritus	shoulder-pegged	alc (rt)	exin (epi)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	199
		na	Kampfersalbe	shoulder-pegged	fat	exin (epi)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	199
		na	Kampfersalbe	ganglion	fat	exin (epi)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	212
		na	Kampfersalbe	mastitis	fat	exin (epi)	QG52	sheep	ad		na	na	na	HSHR	Zipperlen (1959)	377
		na	Kampfer-spiritus	nutritional muscular dystrophy	alc (rt)	exin (epi)	QM	sheep	ad		na	na	na	HSHR	Zipperlen (1959)	383
		na	Kampfer-spiritus	parturient paresis	alc (rt)	exin (epi)	QA	goat	ad		na	na	na	HSHR	Zipperlen (1959)	420
		na	Kampfer-spiritus	rheumatism	alc (rt)	exin (epi)	QM	goat	ad		na	na	na	HSHR	Zipperlen (1959)	426
		na	Kampfersalbe	mastitis	fat	exin (epi)	QG52	pig	ad		na	na	na	HSHR	Zipperlen (1959)	455

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		na	Kampfer-spiritus	pneumonia	alc (rt)	exin (epi)	QR	dog	ad		na	na	na	HSHR	Zipperlen (1959)	577
		na	Kampfergeist	myelitis	alc (rt)	exin (epi)	QV	na	ad		na	na	na	MHSHR	Mangold, Reicherter	667
		na	Kampfer-liniment	sore throat	oil	exin (epi)	QR	na	ad		na	na	na	HSHR	Mangold, Reicherter	669
		na	Kampfer	poisoning by carbolic acid	na	int (oral)	QA	na	all		na	na	na	HSHR	Mangold, Reicherter	690
Linaceae	*Linum usitatissimum* L.	fsb	Leinsamen-schleim	Haemoglobin-uria	water (dec)	int (oral)	GS	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	266
		semen	Leinöl mit Leinsamen-schleim	colic	water (dec)	int (oral)	QA	cattle	ad	2.331		na	na	HSHR	Zipperlen (1959)	294
		fsb	Leinsamen	milk boosting agent	none	int (oral)	GS	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	309
		fsb	Leinsamen-schleim	overloaded rumen, cetose	water (dec)	int (oral)	QA	cattle	ad	na		na	na	MHSHR	Zipperlen (1959)	319
		fsb	Leinöl	sucking lice	none	exal (epi)	QP	cattle	juv		50%	na	na	MHSHR	Mangold, Reicherter	321
		fsb	Leinöl	solanine poisoning	none	exal (epi)	QA	cattle	ad		da	na	na	HSHR	Zipperlen (1959)	341
		fsb	Leinsamen-schleim	enterotoxemia	water (dec)	int (oral)	QA	sheep	ad	na		as support in addition to the vet	na	HSHR	Zipperlen (1959)	382
		fsb	Leinsamen-schleim	salt poisoning	water (dec)	int (rec)	QV	pig	ad	na		na	na	HSHR	Zipperlen (1959)	482
		fsb	Leinsamen-schleim	intoxication	water (dec)	int (oral)	QV	hen	ad	na		na	na	MHSHR	Zipperlen (1959)	529
		fsb	Leinsamen	quinsy	none	exin (dre)	QR	dog	ad		da	na	na	HSHR	Zipperlen (1959)	574
		fsb	Leinöl	constipation	none	int (rec)	QA	dog	ad	na		na	na	HSHR	Zipperlen (1959)	590
		fsb	Leinsamen-schleim	intoxication	water (dec)	int (oral)	QV	dog	ad	na		na	na	HSHR	Zipperlen (1959)	591

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		fsb	Leinsamen-schleim	diarrhoeaa	water (dec)	int (oral)	QA	hen	ad	na		na	na	MHSHR	Mangold, Reicherter	599
		fsb	Leinsamen-schleim	myelitis	water (dec)	int (oral)	QV	na	ad	na		na	na	MHSHR	Mangold, Reicherter	667
		fsb	Leinsamenbrei	sore throat	water (dec)	exin (epi)	QR	na	ad		na	na	na	HSHR	Mangold, Reicherter	669
		fsb	Leinsamen	acute gastroenteritis	water (dec)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Mangold, Reicherter	671
		fsb	Leinsamen	acute gastroenteritis	water (dec)	int (oral)	QA	horse	ad	na		na	na	HSHR	Mangold, Reicherter	671
		fsb	Leinsamen-schleim	diarrhoea	water (dec)	int (oral)	QA	na	ad	na		na	na	HSHR	Mangold, Reicherter	687
		fsb	Leinsanem-schleim	diarrhoea	water (dec)	int (oral)	QA	cattle	juv	na		na	na	HSHR	Mangold, Reicherter	687
		fsb	Leinöl	antidote for intoxication by pungent plants	none	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	689
		fsb	Leinsamen-schleim	antidote for intoxication by pungent plants	water (dec)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	689
		fsb	Leinsamen-abkochung	poisoning by cantharides	water (dec)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690
		fsb	Leinsamen-schleim	nephritis	water (dec)	int (oral)	QG	na	all	na		na	na	MHSHR	Mangold, Reicherter	716
Loranthaceae	*Viscum album* L. S.L.	na	Mistel-abkochung	carpal hygroma	water (dec)	exin (dre)	QM	cattle	ad		9.1%	if not successful, call the vet	na	HSHR	Zipperlen (1959)	292
Lycopodiaceae	*Lycopodium clavatum* L.	na	Bärlapp	diarrhoea	none	int (oral)	QA	horse	ad		4%	na	na	HSHR	Zipperlen (1959)	150
Malvaceae	*Althaea officinalis* L.	rot	Eibischsalbe	sore throat	fat	exin (epi)	QR	na	ad		na	na	na	HSHR	Mangold, Reicherter	669
		rot	Eibischwurzel	acute gastroenteritis	none	int (oral)	QA	cattle	ad	na		na	na	HSHR	Mangold, Reicherter	671
		rot	Eibischwurzel	acute gastroenteritis	none	int (oral)	QA	horse	ad	na		na	na	HSHR	Mangold, Reicherter	671

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		na	Eibischtee	diarrhoea	none	int (oral)	QA	cattle	juv	na		na	na	MHSHR	Mangold, Reicherter	687
		na	Eibischtee	poisoning by cantharides	water (inf)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690
		na	Eibischwurzel-pulver	abdominal dropsy ascites	none	int (oral)	QV	cattle	ad	0.155 - 0.311		na	na	HSHR	Mangold, Reicherter	696
		na	Eibischwurze-lpulver	abdominal dropsy ascites	none	int (oral)	QV	horse	ad	0.155 - 0.311		na	na	HSHR	Mangold, Reicherter	696
		na	Eibischwurzel-schleim	nephritis	water (dec)	int (oral)	QG	na	ad	na		na	na	MHSHR	Mangold, Reicherter	716
	Malva sylvestris L.	lea	Malvenblätter-tee	cold	water (inf)	int (oral)	QR	horse	ad	0.35		na	na	HSHR	Zipperlen (1959)	161
	Tilia cordata Mill. *(*or *Tilia platyphyllos* scop.*)*	flo	Lindenblüten-tee	parturient paresis	water (inf)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	274
		flo	Lindenblüten-tee	nephritis	water (inf)	int (oral)	QG	cattle	ad	0.233		na	na	HSHR	Zipperlen (1959)	318
		flo	Lindenblüten-tee	zinc intoxication	water (inf)	int (oral)	QV	pig	ad	na		until the arrival of the vet	na	HSHR	Zipperlen (1959)	483
		flo	Lindenblüten-tee	nephritis	water (inf)	int (oral)	QG	dog	ad	na		only as support in addition to the vet	na	HSHR	Zipperlen (1959)	579
Menyanthaceae	*Menyanthes trifoliata* L.	her	Bitterklee	rickets	none	int (oral)	QM	cattle	juv	na		na	na	HSHR	Zipperlen (1959)	293
Orobanchaceae	*Euphrasia rostkoviana* Hayne	her	Augentrost	conjunctivitis	water (dec)	exal (konj)	QS	horse	all		1%	na	na	HSHR	Zipperlen (1959)	139
Pinaceae	*Larix decidua* Mill.	twb	Lärchenzweige	hepatitis	water (dec)	int (oral)	QA	horse	ad	na		na	na	HSHR	Zipperlen (1959)	181
	Picea abies (L.) H.Karst.	twb	Fichtenzweige nabkochung	phlegmon	water (dec)	exin (wash)	QM	horse	ad		na	na	na	MHSHR	Zipperlen (1959)	152
		twb	Fichtenzweige	wool eating syndrome	none	int (oral)	QN	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	363
		twb	Fichten-sprossen	anaemia	none	int (oral)	QB	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	371

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	Pinus sylvestris L.	twb	Kiefernzweige	wool eating syndrome	none	int (oral)	QN	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	363
Plantaginaceae	*Plantago lanceolata* L.	lea	Spitzwegerich-salbe	curb	honey	exal (dre)	QM	horse	ad		na	na	na	MHSHR	Zipperlen (1959)	166
	Veronica L.	na	Ehrenpreistee	nephritis	water (inf)	int (oral)	QG	cattle	ad	0.233		na	na	HSHR	Zipperlen (1959)	318
Poaceae	*Avena sativa* L.	fsb	Haferschleim	intoxication	water (dec)	int (oral)	QV	dog	ad	na		na	na	HSHR	Zipperlen (1959)	591
		fsb	Haferschleim	acute gastroenteritis	water (dec)	int (oral)	QA	na	juv	na		na	na	HSHR	Mangold, Reicherter	673
		fsb	Haferschleim	enterotoxemia	water (dec)	int (oral)	QA	sheep	ad	na		as support in addition to the vet	na	HSHR	Zipperlen (1959)	382
		fsb	Hafer	parturient paresis	none	int (oral)	QA	goat	ad	na		na	na	HSHR	Zipperlen (1959)	420
		fsb	Haferschleim	salt poisoning	water (dec)	int (oral)	QV	pig	ad	na		na	na	HSHR	Zipperlen (1959)	482
		fsb	Haferschleim	salt poisoning	water (dec)	int (rec)	QV	pig	ad	na		na	na	HSHR	Zipperlen (1959)	482
		fsb	Haferschleim	intoxication	water (dec)	int (oral)	QV	hen	ad	na		as first aid	na	MHSHR	Zipperlen (1959)	529
		fsb	Haferbrei	constipation	water (dec)	int (oral)	QA	dog	ad	na		na	na	HSHR	Zipperlen (1959)	590
		fsb	Haferschleim	constipation	water (dec)	int (oral)	QA	dog	ad	na		na	na	HSHR	Zipperlen (1959)	590
	Elymus repens L.	fsb	Quecken-abkochung	hoof cartilage fistula	water (dec)	exal (wash)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	171
	Hordeum vulgare L. S.L.	fsb	Gersten-schleim	constipation	water (dec)	int (oral)	QA	dog	ad	na		na	na	HSHR	Zipperlen (1959)	590
		fsb	Gersten-schleim	antidote for intoxication by pungent plants	water (dec)	int (oral)	QA	na	ad	na		na	na	HSHR	Mangold, Reicherter	689
Polygonaceae	*Fagopyrum esculentum* L.	fsb	Buchweizen	fagopyrism	none	int (oral)	QD	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	373

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	Rheum rhabarbarum L.	rot	Rhabarber-wurzelpulver	diarrhoeaa	none	int (oral)	QA	cattle	juv	na		na	na	HSHR	Mangold, Reicherter	321
		na	Rhabarber-tinktur	acute gastroenteritis	none	int (oral)	QA	dog	ad	na		na	na	HSHR	Mangold, Reicherter	672
		na	Rhabarber-tinktur	colic	none	int (oral)	QA	dog	ad	na		na	na	HSHR	Mangold, Reicherter	686
		na	Rhabarber-wurzelpulver	diarrhoea	none	int (oral)	QA	cattle	juv	0.031 - 0.093		na	na	MHSHR	Mangold, Reicherter	687
	Rumex obtusifolius L.	na	Sauerblatt	wool eating syndrome	none	int (oral)	QN	sheep	ad	na		na	na	HSHR	Zipperlen (1959)	363
Primulaceae	*Primula veris* L.	flo	Schlüssel-blumentee	cold	water (inf)	int (oral)	QR	horse	ad	0.35		na	na	HSHR	Zipperlen (1959)	161
Ranunculaceae	*Helleborus* L.	na	Nießwurz	acute gastroenteritis	none	int (oral)	QA	pig	ad	0.009 - 0.019		na	na	MHSHR	Mangold, Reicherter	672
Rosaceae	*Agrimonia eupatoria* L.	lea	Odermenning-blättertee	diabetes	water (inf)	int (oral)	QG	horse	ad	na		na	na	HSHR	Zipperlen (1959)	165
	Malus domestica Borkh.	fsb	roher Apfel	diarrhoea	none	int (oral)	QA	dog	ad	na		na	na	HSHR	Zipperlen (1959)	571
	Potentilla anserina L.	her	Gänsekraut-abkochung	carpal hygroma	vinegar (rt)	exin (dre)	QM	cattle	ad		0.9%	if not successful, call the vet	na	HSHR	Zipperlen (1959)	292
	Potentilla erecta (L.) Raeusch.	rot	Tormentill-wurzelpulver	acute gastroenteritis	none	int (oral)	QA	cattle	ad	0.583		na	na	HSHR	Mangold, Reicherter	671
		rot	Tormentill-wurzelpulver	acute gastroenteritis	none	int (oral)	QA	horse	ad	0.583		na	na	HSHR	Mangold, Reicherter	671
		rot	Tormentill-wurzel-abkochung	poisoning by lead and fine salts	water (dec)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690
		rot	Tormentill-wurzel-abkochung	haemoglobinuria	water (dec)	int (oral)	QG	na	all	na		na	na	HSHR	Mangold, Reicherter	718
	Prunus spinosa L.	flo	Schlehen-blütentee	chest founder	water (inf)	int (oral)	QR	horse	ad	na		na	na	HSHR	Zipperlen (1959)	147
		fsb	Schlehenwein	parotitis	water (rt)	int (oral)	QV	horse	ad	0.35		na	na	HSHR	Zipperlen (1959)	190

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		fsb	Schlehenwein	gastrointestinal worms	water (rt)	int (oral)	QP	horse	ad	na		na	only for weak infestation	HSHR	Zipperlen (1959)	224
	Rubus fructicosus L.	lea	Brombeer-blätter	ulcers	water (inf)	exal (wash)	QV	horse	ad		9.1%	na	na	HSHR	Zipperlen (1959)	160
Rubiaceae	*Coffea* L.	fsb	Bohnenkaffee	lumbago	water (dec)	int (oral)	QM	horse	ad	na		na	na	HSHR	Zipperlen (1959)	179
		fsb	Bohnenkaffee	haemoglobinuria	water (dec)	int (oral)	GS	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	266
		fsb	Bohnenkaffee	intoxication	water (dec)	int (oral)	QA	cattle	ad	na		na	na	HSHR	Zipperlen (1959)	339
		fsb	Bohnenkaffee	sepsis	water (dec)	int (oral)	QV	goat	ad	na		na	na	MHSHR	Zipperlen (1959)	417
		fsb	Bohnenkaffee	parturient paresis	water (dec)	int (oral)	QA	goat	ad	na		na	na	MHSHR	Zipperlen (1959)	420
		fsb	Bohnenkaffe	zinc intoxication	water (dec)	int (oral)	QV	pig	ad	na		until the arrival of the vet	na	HSHR	Zipperlen (1959)	483
		fsb	Bohnenkaffe	alcohol poisoning	water (dec)	int (oral)	QV	pig	ad	0.282		until the arrival of the vet	na	MHSHR	Zipperlen (1959)	483
		fsb	Bohnenkaffee	cirrhosis of the liver	water (dec)	int (oral)	GS	hen	ad	na		na	na	HSHR	Zipperlen (1959)	518
		fsb	Bohnenkaffee	intoxication	water (dec)	int (oral)	QV	hen	ad	na		as first aid	na	HSHR	Zipperlen (1959)	529
		fsb	Kaffee	diarrhoeae	water (dec)	int (oral)	QA	cattle	juv	na		na	na	HSHR	Mangold, Reicherter	678
		fsb	Kaffee	poisoning by fine salts and lead	water (dec)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690
		fsb	Kaffee	poisoning by Strichnin, Morphine and Opium	water (dec)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690

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	Corynanthe johimbe K.Schum.	na	Yohimbin	anaphrodisia	none	int (oral)	QG	cattle	ad	na		na	na	MHSHR	Mangold, Reicherter	723
		na	Yohimbin	anaphrodisia	none	int (oral)	QG	horse	ad	na		na	na	MHSHR	Mangold, Reicherter	723
	Galium verum L.	her	Labkraut	wounds	none	exal (epi)	QD	horse	all		da	na	na	HSHR	Zipperlen (1959)	222
		her	Labkrautsalbe	burn- and etchingwounds	cream	exal (epi)	QD	horse	all		na	na	na	HSHR	Zipperlen (1959)	222
Salicaceae	*Salix spp.*	bar	Weidenrinden-abkochung	hoof cartilage fistula	water (dec)	exal (wash)	QM	horse	ad		na	na	na	HSHR	Zipperlen (1959)	171
		bar	Weidenrinden-abkochung	lumbago	water (dec)	exin (wash)	QM	horse	ad		na	na	na	MHSHR	Zipperlen (1959)	152
		bar	Weidenrinden-abkochung	thrush	water (dec)	exal (epi)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	210
		bar	Weidenrinde	diarrhoeaa	water (dec)	int (oral)	QA	rabbit	ad	0.043		na	na	HSHR	Mangold, Reicherter	522
		bar	Weidenrinden-abkochung	urinary incontinence	water (dec)	int (vaut)	QG	na	ad	na		not effective if bladder stones are the cause	na	HSHR	Mangold, Reicherter	714
		bar	Weidenrinden-abkochung	haematuria	water (dec)	int (oral)	QG	cattle	all	na		na	na	HSHR	Mangold, Reicherter	718
		bar	Weidenrinden-abkochung	haematuria	water (dec)	int (oral)	QG	sheep	all	na		na	na	HSHR	Mangold, Reicherter	718
		bar	Weidenrinden-abkochung	sprain	water (dec)	exin (epi)	QM	na	ad		na	na	to prevent weakness (which otherwise becomes chronic)	HSHR	Mangold, Reicherter	907
		bar	Weidenrinden-abkochung	frostbite	water (dec)	exal (epi)	QD	na	all		na	na	na	HSHR	Mangold, Reicherter	936
Sapindaceae	*Aesculus hippocastanum* L.	fsb	Roßkastanien	wounds	water (dec)	exal (wash)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	222

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Scrophulariaceae	*Verbascum* L.	her	Wollkrauttee	cold	water (inf)	int (oral)	QR	horse	ad	0.35		na	na	HSHR	Zipperlen (1959)	161
Solanaceae	*Solanum tuberosum* L.	rot	Kartoffelbeutel	lumbago	none	exin (epi)	QM	cattle	ad		da	na	na	HSHR	Zipperlen (1959)	295
		rot	Kartoffelbeutel	nephritis	none	exin (epi)	QG	cattle	all		da	na	na	HSHR	Zipperlen (1959)	318
		rot	Kartoffelbeutel	rheumatism	none	exin (epi)	QM	cattle	ad		da	na	na	HSHR	Zipperlen (1959)	323
		rot	Kartoffelmehl	eczema	none	exal (epi)	QD	dog	ad		da	na	na	HSHR	Zipperlen (1959)	575
		rot	Kartoffelsuppe	constipation	water (dec)	int (oral)	QA	dog	ad	na		na	na	HSHR	Zipperlen (1959)	590
		rot	Kartoffelbrei	sore throat	none	exin (epi)	QR	na	ad		da	na	na	HSHR	Mangold, Reicherter	669
Theaceae	*Camellia sinensis* (L.) Kuntze	lea	Schwarzer Tee	antidote for intoxication by narcotic poisons	water (inf)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690
		lea	Schwarzer Tee	poisoning by lead and fine salts	water (inf)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690
		lea	Schwarzer Tee	poisoning by Strichnin, Morphium and Opium	water (inf)	int (oral)	QA	na	all	na		na	na	HSHR	Mangold, Reicherter	690
Urticaceae	*Urtica dioica* L.	her	Brennnessel-tee	rash	water (inf)	exal (wash)	QD	horse	ad		na	na	na	HSHR	Zipperlen (1959)	163
		her	Brennnesseln	loss of apetitte	none	int (oral)	QA	pig	ad	na		na	na	HSHR	Zipperlen (1959)	451
	Urtica urens L.	na	Urtcia urens starke Tinktur	burn of the skin	none	int (oral)	QD	na	all	na		na	na	HSHR	Mangold, Reicherter	935
Verbenaceae	*Verbena officinalis* L.	lea	Eisenkraut-blätter	ulcers	vinegar (dec)	exal (wash)	QV	horse	ad		9.1%	na	na	HSHR	Zipperlen (1959)	160
Violaceae	*Viola odorata* L.	rot	geschnittene Veilchenwurzel	meningitis	water (inf)	int (oral)	QN	horse	ad	0.233		na	na	HSHR	Zipperlen (1959)	158

7. List of use reports of the interviews

List of abbreviations

General:
na= information not available

Recipe Type:
HSHR = homemade single herbal remedy
MHSHR = mixed homemade single herbal remedy
(consisting of one plant + natural substances)

Plant part:
bar=
bulb = bulbus
exc = excretions
flo = flowers and inflorescences
frh = fruit hairs
fsb = fruits, seeds, berries
fst = fruit stalks
her = whole plants without roots (herb)
lea = leaves
lear = leaves + roots
pet = petals
rot = roots
shl = shell
stm = stem
twb = twigs, branches, branch tips
wpr = whole plants with roots

Type of use:
proph = prophylactic
thera = therapeutic

KW HSHR = Knowledge homemade single herbal remedy
KW UR = Knowledge use report

adv = advertising
bo = books
cour = courses/ education
fam = family, ancestors; fri = friends
mag = magazines
own = own experience
others = others, vet = veterinarian

Origin:
bo = bought/ crude drug
bo*= bought/ commercial extracts and finished products
cu = cultivated
rec = received (from friends/ neighbors)
wh = wild harvesting

Categories of use:
behave = behavior (nervous system)
gastr = gastrointestinal disorders and metabolic dysfunctions
infer = infertility and diseases of female genitals
mast = mastitis
musc = musculoskeletal system
para = parasites
resp = respiratory tract diseases
sens = sensory organ
skin = skin alterations and sores
streng = general strengthening
varia = various indications

Administration
exal = external administration, altered or sore skin
(epicutan)
(konj) = konjuntival
exin = external administration, intact skin
int = internal administration
(nasal)
(oral)
(vaut) = intravaginal/ intrauterine
tohe = treatment of housing environment

SA in mm = Satisfaction of the farmer in mm
Anim. Spec. = Animal species treated
Extract. on farm = Extraction procedure on farm
DP = Database Dialogue Partner number
UR N = Database Identification number of the use report (UR)

Extraction procedure on farm:
none
alcohol: (rt) = room temperature, (et)= elevated temperature
milk: (rt) = room temperature, (et) = elevated temperature, (dec) = decoction
oil/ fat: (rt) = room temperature, (et) = elevated temperature
wat: (rt) = water room temperature, (dec) = water decoction, (inf) = water infusion
(et) = heated to 45 degrees
vinegar: (rt) = room temperature

FR = Frequency of use during the last 5 years
0 = no application
1 = once
2-5x = two to five times
6-9x = six to nine times
>10x = more than ten times

bark

Last use:
never = never
< 7 d = within the last 7 days
< 4 w = between the last 7 days and 4 weeks ago
< 1 y = between the last 4 weeks and 1 year ago
< 5 y = between the last year and 5 years ago
< 10 y = between the last 5 years to the last 10 years

Daily dosage [g/kg$_{0.75}$]
in plant equivalent per kg metabolic body weight [g/kg$_{0.75}$];
used in formulations for oral administration only;

Conc [g/100g]
Concentration [g drug in 100g finished product]; used in formulations for topical treatment and intravaginal/ intrauterine administration;
da = directly administered without extraction, external administration;

VER = Verification of dosage
ew = estimated weight by assessment of the volume and subsequent weighing
od = original drug weighted on-site
rd = reference drug weighted on-site

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
Adoxaceae	*Sambucus nigra* L.	Holunder	HSHR	flo	wh	wat (inf)	gastr	cattle	juvenil	proph	int (oral)	0.02		od	<7d	<10x	96	own	own	41	400
		Holunder	HSHR	flo	cu	none	gastr	hen	all	thera	int (oral)	na		ew	<5y	2-5x	na	own	own	64	634
		Holunder	HSHR	flo	cu	none	gastr	dog	adult	thera	int (oral)	0.17		ew	<1y	6-9x	79	own	own	64	633
		Holunder-beeren	HSHR	fsb	wh	none	streng	hen	adult	proph	int (oral)	na		na	<1y	2-5x	na	own	own	71	743
		Holunder-beeren	HSHR	fsb	wh	none	para	hen	adult	proph	int (oral)	na		na	<1y	2-5x	na	own	own	71	742
		Holunder-blätter	HSHR	lea	cu	none	musc	cattle	adult	thera	exin (epicutan)		da	od	<1y	<10x	86	fam	fam	14	163
Amaryllidaceae	*Allium cepa* L.	Zwiebel	HSHR	bulb	rec	none	para	cattle	adult	thera	int (oral)	0.622		ew	<5y	once	72	fri	own	4	40
		Zwiebel	HSHR	bulb	rec	none	para	sheep	adult	thera	int (oral)	37.037		ew	>10y	never	100	fri	own	4	39
		Zwiebel-schmalz	HSHR	bulb	bo	oil/fat (et)	mast	cattle	adult	thera	exin (epicutan)		na	na	>10y	never	na	fam	fam	75	812
	Allium sativum L.	Knoblauch	HSHR	bulb	bo	none	gastr	cattle	juvenil	thera	int (oral)	0.056		rd	<1y	<10x	90	mag	mag	22	234
		Knoblauch	HSHR	bulb	bo	none	resp	cattle	juvenil	thera	int (oral)	0.056		rd	<1y	<10x	69	mag	mag	22	233
		Knoblauchzehe	HSHR	bulb	bo	none	skin	sheep	adult	proph	int (oral)	0.03		rd	<1y	2-5x	99	fri	fri	23	247
	Allium schoeno-prasum L.	Schnittlauch-brot	MHSHR	wpr	cu	none	infer	cattle	adult	thera	int (oral)	0.077		od	<5y	2-5x	82	fam	fam	8	76
Apiaceae	*Apium graveolens* L.	Sellerie	HSHR	rot	bo	none	infer	cattle	adult	thera	int (oral)	0.027		od	<7d	<10x	72	book	book	36	350
Apiaceae	*Daucus carota* L.	Gelberübe	HSHR	rot	bo	wat (dec)	gastr	cattle	juvenil	proph	int (oral)	6918		rd	>10y	never	39	fri	fri	5	45
		Gelberüben	HSHR	rot	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	5578		od	<5y	once	75	fri	fri	16	180
		Gelberüben	HSHR	rot	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	7481		od	<1y	<10x	83	cour	cour	7	65
		Gelberüben	MHSHR	rot	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	3924		od	<4w	6-9x	93	book	cour	70	732

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extraction on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Gelberüben mit Heilerde	MHSHR	rot	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	0.11		rd	<4w	2-5x	74	fri	cour	29	295
		Karotten	HSHR	rot	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	0.235		od	<10y	never	100	cour	cour	55	526
		Karottensuppe	HSHR	rot	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	3.74		ew	<4w	once	98	cour	cour	41	397
		Mohrrosche Möhrensuppe	MHSHR	rot	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	2501		rd	<7d	<10x	100	others	vet	11	115
		Morosche Karottensuppe	HSHR	rot	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	22062		od	<5y	<10x	100	book	book	36	347
	Foeniculum vulgare Mill.	Fencheltee	HSHR	fsb	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	1035		od	<4w	<10x	83	own	own	44	417
		Omas altes Hausmittel	MHSHR	fsb	bo	wat (rt)	gastr	cattle	juvenil	thera	int (oral)	na		na	never	never	na	adv	adv	53	492
	Levisticum officinale W.D.J.Koch	Maggikraut	HSHR	her	cu	none	para	cattle	all	thera	exin (epicutan)		da	na	<5y	<10x	64	fri	fri	68	718
	Peucedanum ostruthium (L.) W.D.J.Koch	Meisterwurz	MHSHR	rot	bo*	alcohol (rt)	infer	cattle	adult	thera	int (oral)	0.035		od	<10y	never	63	book	book	10	98
		Meisterwurz	MHSHR	rot	bo*	alcohol (rt)	resp	cattle	juvenil	thera	int (oral)	0.007		od	<1y	<10x	64	book	book	10	97
		Meisterwurz Pur	HSHR	rot	wh	none	streng	cattle	adult	thera	int (oral)	0.001		od	<5y	6-9x	na	fam	fam	75	806
		Meisterwurz Pur	HSHR	rot	wh	none	varia	cattle	adult	proph	int (oral)	0.001		od	>10y	never	na	fam	fam	75	805
		Meisterwurz-tee	HSHR	rot	wh	wat (dec)	streng	cattle	adult	thera	int (oral)	0.016		od	>10y	never	na	fam	fam	75	807
		Meisterwurz-tinktur	HSHR	rot	wh	alcohol (rt)	gastr	cattle	juvenil	thera	int (oral)	na		na	<5y	<10x	97	own	fam	75	808
Aquifoliaceae	*Ilex aquifolium* L.	Dornenbusch	HSHR	twb	wh	none	para	cattle	juvenil	thera	tohe		na	na	<5y	<10x	na	vet	vet	66	688
Aristolochiaceae	*Asarum europaeum*L.	Haselwurz	HSHR	her	wh	wat (inf)	infer	cattle	adult	thera	int (oral)	0.012		od	<10y	never	100	fam	fam	51	481

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
Asparagaceae	Ornithogalum caudatum Aiton	Falsche Meerzwiebel	HSHR	lea	cu	none	skin	cat	adult	thera	exal (epicutan)		da	na	<1y	once	100	own	fri	33	338
Aspidiaceae	*Dryopteris filix-mas* (L.) Schott	Wurmfarn	HSHR	her	wh	none	para	hen	adult	proph	tohe		na	na	<7d	<10x	10	fam	fam	71	753
Asteraceae	*Achillea millefolium* L.	Schafgarbe	HSHR	lea	wh	none	mast	cattle	adult	thera	exin (epicutan)		da	od	<1y	<10x	100	book	book	9	83
		Schafgarben-Propolis Tinktur	MHSHR	her	wh	alcohol (rt)	skin	cattle	adult	thera	exal (epicutan)		na	na	<7d	once	na	book	own	53	496
		Schafgarben-Propolis Tinktur	MHSHR	her	wh	alcohol (rt)	infer	cattle	adult	thera	exal (epicutan)		na	na	<7d	once	100	book	own	53	497
		Schafgarbenpulver	HSHR	lea	wh	none	skin	cattle	adult	thera	int (oral)	0.063		rd	<1y	<10x	99	cour	cour	31	323
		Schafgarbentee	HSHR	lea	wh	wat (inf)	gastr	cattle	juvenil	proph	int (oral)	0.062		od	<7d	2-5x	100	fri	fri	4	43
	Arnica chamissonis Less.	Arnikaschnaps	HSHR	flo	cu	alcohol (rt)	musc	cattle	all	thera	exin (epicutan)		na	od	<1y	<10x	77	fam	fam	38	383
	Arnica montana L.	Arnikaauszug	HSHR	flo	wh	wat (rt)	musc	cattle	adult	thera	exin (epicutan)		na	na	>10y	never	96	fam	fam	21	222
		Arnikablütenansatz	HSHR	flo	wh	alcohol (rt)	mast	cattle	adult	thera	exin (epicutan)		na	na	<7d	<10x	61	na	na	50	466
		Arnikablütenansatz	HSHR	flo	wh	alcohol (rt)	musc	cattle	adult	thera	exin (epicutan)		na	na	<7d	<10x	95	na	na	50	465
		Arnikaschnaps	HSHR	flo	wh	alcohol (rt)	skin	cattle	adult	thera	exal (epicutan)		na	na	>10y	never	100	fri	fri	69	727
		Arnikaspiritus	HSHR	flo	wh	alcohol (rt)	skin	cattle	all	thera	exal (epicutan)		na	na	<1y	<10x	10	fam	fam	75	823
		Arnikaspiritus	HSHR	flo	wh	alcohol (rt)	skin	cattle	adult	thera	exal (epicutan)		na	na	<1y	<10x	na	fam	fam	75	824
		Arnikaspiritus	HSHR	flo	wh	alcohol (rt)	skin	cattle	adult	proph	exal (epicutan)		na	na	<5y	<10x	99	fam	fam	75	822
		Arnikatinktur	HSHR	flo	bo*	alcohol	gastr	cattle	adult	thera	int (oral)	0.016		od	<1y	<10x	79	fam	fam	58	564

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Ori-gin	Extract. on farm	Cate-gories of use	Anim. spec.	Animal age	Type of use	Admi-nistra-tion	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	UR N
		Arnikatinktur	HSHR	flo	bo*	alcohol	skin	dog	adult	thera	exal (epicutan)		na	na	<7d	<10x	100	fri	fri	73	781
		Arnikatinktur	HSHR	flo	bo*	alcohol	musc	cattle	all	thera	exal (epicutan)		0.5	od	<5y	2-5x	90	fam	fam	58	565
		Arnikatinktur	HSHR	flo	bo*	alcohol	musc	cattle	juvenil	proph	exal (epicutan)		10.0	na	<5y	once	100	fam	fam	11	105
		Arnikatinktur	HSHR	flo	bo*	alcohol	skin	dog	adult	thera	exin (epicutan)		na	na	<1y	<10x	91	fri	fri	73	782
		Arnikatinktur	HSHR	flo	bo*	alcohol	skin	cattle	adult	thera	exal (epicutan)		10.0	na	<1y	<10x	98	fam	fam	11	104
		Arnikatinktur	HSHR	flo	bo*	alcohol	para	cat	all	thera	exal (epicutan)		0.5	od	<1y	<10x	58	fam	fam	58	563
		Arnikatinktur	HSHR	flo	wh	alcohol (rt)	musc	cattle	adult	thera	exal (epicutan)		na	na	<10y	never	na	own	fri	26	271
		Arnikatinktur	HSHR	flo	wh	alcohol (rt)	mast	cattle	adult	proph	exal (epicutan)		na	na	<7d	<10x	94	own	fri	26	272
		Arnikatinktur	HSHR	flo	wh	alcohol (rt)	mast	cattle	all	thera	exal (epicutan)		na	na	<7d	<10x	95	book	book	62	602
		Arnikatinktur	HSHR	her	bo*	alcohol (rt)	skin	cattle	juvenil	proph	exal (epicutan)		60.0	na	<10y	never	99	book	fam	55	516
	Artemisia abrotanum L.	Eberraute	HSHR	her	bo	none	para	dog	adult	proph	int (oral)	0.353		ew	<1y	<10x	na	vet	vet	73	787
	Artemisia absinthium L.	Wermut	HSHR	her	wh	none	gastr	cattle	juvenil	thera	int (oral)	na		na	>10y	never	na	fri	fri	20	211
		Wermut	HSHR	her	cu	wat (dec)	gastr	cattle	adult	thera	int (oral)	0.072		od	<10y	never	74	fam	fam	75	825
		Wermut mit Traubenzucker	MHSHR	her	bo	wat (inf)	streng	cattle	adult	proph	int (oral)	0.356		od	<5y	<10x	97	fri	fri	28	288
		Wermuttee	HSHR	lea	bo	wat (inf)	streng	cattle	adult	thera	int (oral)	0.06		od	never	never	na	book	book	36	352
		Wermuttee	HSHR	her	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	1.49		od	<5y	<10x	99	fri	fri	28	289
		Wermuttee	HSHR	her	bo	wat (inf)	gastr	cattle	adult	thera	int (oral)	0.016		od	<1y	2-5x	82	book	book	65	670
	Calendula officinalis L.	Calendula Tinktur	HSHR	flo	bo*	alcohol	skin	cattle	adult	thera	exin (epicutan)		20.0	od	<10y	never	99	fri	fri	55	515

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Ori-gin	Extract. on farm	Cate-gories of use	Anim. spec.	Animal age	Type of use	Admi-nistra-tion	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	UR N
		Calendula Tinktur	HSHR	flo	bo*	alcohol	skin	cattle	adult	thera	exal (epicutan)		20.0	od	<10y	never	98	fri	fri	55	514
		Calendula Tinktur	HSHR	flo	bo*	alcohol	skin	cattle	adult	thera	exal (epicutan)		20.0	od	<10y	never	99	fri	fri	55	513
		Eutersalbe	MHSHR	pet	cu	oil/fat (rt)	mast	cattle	adult	proph	exal (epicutan)		0.26	od	<5y	<10x	70	cour	cour	2	21
		Honigspray	MHSHR	flo	cu	oil/fat (rt)	skin	horse	all	thera	exal (epicutan)		1.0	od	<1y	<10x	98	fri	cour	12	124
		Honigspray	MHSHR	flo	cu	oil/fat (rt)	skin	cattle	all	thera	exal (epicutan)		1.0	od	<1y	<10x	83	fri	cour	12	125
		Ringelblumen-öl	HSHR	flo	cu	oil/fat (rt)	skin	cattle	all	thera	exal (epicutan)		na	na	<1y	<10x	96	own	book	12	140
		Ringelblumen-salbe	HSHR	lea	cu	oil/fat (et)	skin	cattle	all	thera	exal (epicutan)		na	na	<7d	<10x	10	mag	fam	74	793
		Ringelblumen-salbe	HSHR	flo	bo*	oil/fat	skin	sheep	all	thera	exal (epicutan)		na	na	<5y	<10x	87	fam	fam	37	371
		Ringelblumen-salbe	HSHR	flo	cu	oil/fat (rt)	skin	cattle	all	thera	exal (epicutan)		na	na	<4w	<10x	81	fam	fam	58	566
		Ringelblumen-salbe	HSHR	flo	cu	oil/fat (rt)	skin	cattle	all	thera	exal (epicutan)		na	na	<1y	<10x	98	book	book	68	711
		Ringelblumen-salbe	HSHR	flo	cu	oil/fat (rt)	skin	cattle	all	thera	exal (epicutan)		na	od	<7d	<10x	86	own	book	12	135
		Ringelblumen-salbe	HSHR	flo	cu	oil/fat (rt)	skin	cattle	juvenil	proph	exal (epicutan)		na	od	<7d	<10x	99	cour	cour	27	283
		Ringelblumen-salbe	HSHR	flo	cu	oil/fat (rt)	skin	cattle	adult	thera	exal (epicutan)		na	od	<7d	<10x	100	cour	cour	27	284
		Ringelblumen-salbe	HSHR	flo	cu	oil/fat (et)	skin	cattle	adult	thera	exal (epicutan)		1.65	od	<4w	<10x	100	fam	fam	13	152
		Ringelblumen-salbe	HSHR	flo	cu	oil/fat (et)	skin	cattle	adult	thera	exal (epicutan)		2.8	od	<1y	<10x	100	own	own	50	474
		Ringelblumen-salbe	HSHR	flo	cu	oil/fat (et)	skin	cattle	adult	thera	exal (epicutan)		na	na	<1y	<10x	92	own	book	9	87
		Ringelblumen-salbe	HSHR	flo	rec	oil/fat (et)	para	cattle	all	thera	exal (epicutan)		na	na	>10y	never	98	fri	fri	63	626

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extraction farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Ringelblumen-salbe	HSHR	pet	cu	alcohol (rt)	mast	cattle	adult	thera	exin (epicutan)		na	na	>10y	never	75	mag	mag	62	605
		Ringelblumen-salbe	HSHR	pet	cu	alcohol (rt)	para	cattle	all	thera	exal (epicutan)		na	na	<10y	never	na	mag	fri	62	604
		Ringelblumen-salbe	HSHR	pet	cu	oil/fat (rt)	skin	donkey	adult	thera	exal (epicutan)		na	na	<1y	<10x	100	own	own	45	432
		Ringelblumen-salbe	HSHR	pet	cu	oil/fat (rt)	skin	donkey	adult	proph	exin (epicutan)		na	na	<1y	<10x	100	own	own	45	433
		Ringelblumen-salbe	HSHR	pet	cu	oil/fat (rt)	skin	rabbit	adult	thera	exal (epicutan)		na	na	<1y	once	100	own	own	45	431
		Ringelblumen-salbe	HSHR	pet	cu	oil/fat (rt)	skin	cattle	all	thera	exal (epicutan)		2.0	od	never	never	na	cour	cour	77	837
		Ringelblumen-salbe	HSHR	pet	cu	oil/fat (et)	skin	cattle	all	thera	exal (epicutan)		0.6	rd	<5y	<10x	99	cour	cour	1	9
		Ringelblumen-salbe	HSHR	pet	cu	oil/fat (et)	skin	cattle	adult	thera	exal (epicutan)		0.6	rd	<1y	<10x	93	cour	cour	1	10
		Ringelblumen-salbe	HSHR	pet	cu	oil/fat (et)	skin	cattle	adult	thera	exal (epicutan)		13.8	rd	<1y	2-5x	93	own	own	31	319
		Ringelblumen-salbe	HSHR	pet	cu	oil/fat (et)	skin	sheep	adult	thera	exin (epicutan)		0.9	rd	<5y	2-5x	97	others	vet	23	246
		Ringelblumen-salbe	HSHR	pet	cu	oil/fat (et)	skin	sheep	adult	thera	exal (epicutan)		0.9	rd	<5y	2-5x	97	others	vet	23	245
		Ringelblumen-spiritus	HSHR	flo	cu	alcohol (rt)	gastr	cattle	adult	thera	exin (epicutan)		na	na	<10y	never	92	fam	fam	75	826
		Ringelblumen-tee	HSHR	flo	cu	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.109		rd	<1y	<10x	90	cour	cour	1	16
		Ringelblumen-tee	HSHR	flo	cu	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.024		od	<5y	2-5x	76	fri	fri	12	138
		Ringelblumen-tee	HSHR	flo	cu	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.278		od	<4w	<10x	100	own	own	50	475
		Ringelblumen Tinktur	HSHR	flo	bo*	alcohol (rt)	skin	cattle	all	thera	exal (epicutan)		na	na	<7d	<10x	93	cour	cour	37	372
		Ringelblumen Tinktur	HSHR	flo	cu	alcohol (rt)	skin	cattle	all	thera	exal (epicutan)		na	na	<4w	<10x	100	book	book	53	494

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Ori-gin	Extract. on farm	Cate-gories of use	Anim. spec.	Animal age	Type of use	Admi-nistra-tion	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	UR N
		Ringelblumen Tinktur	HSHR	flo	cu	alcohol (rt)	skin	cattle	all	thera	exal (epicutan)		na	na	<1y	<10x	44	cour	cour	27	282
		Ringelblumen Tinktur	HSHR	flo	cu	alcohol (rt)	skin	cattle	all	thera	exal (epicutan)		na	na	<1y	<10x	96	own	book	12	139
		Ringelblumen Tinktur	HSHR	flo	cu	alcohol (rt)	skin	cattle	all	thera	exal (epicutan)		na	na	<1y	<10x	100	na	na	43	412
		Ringelblumen Tinktur	HSHR	flo	cu	alcohol (rt)	skin	cattle	juvenil	proph	exal (epicutan)		na	na	<7d	<10x	95	cour	cour	27	281
		Ringelblumen Tinktur	HSHR	flo	cu	alcohol (rt)	skin	cattle	adult	thera	exal (epicutan)		na	na	<7d	<10x	94	cour	cour	56	540
		Ringelblumen Tinktur	HSHR	flo	cu	alcohol (rt)	skin	cattle	adult	thera	exal (epicutan)		na	na	<7d	<10x	71	na	na	43	413
		Ringelblumen Tinktur	HSHR	pet	cu	alcohol (rt)	skin	cattle	all	thera	exal (epicutan)		3.08	od	<1y	<10x	100	cour	cour	31	314
	Matricaria recutita L.	Kamillentee	HSHR	flo	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.682		od	>10y	never	62	fam	fam	15	165
		Kamillentee	HSHR	flo	bo	wat (inf)	resp	cattle	juvenil	thera	tohe		na	od	<1y	6-9x	82	fam	fam	57	546
		Kamillentee	HSHR	flo	bo	wat (inf)	sens	hen	juvenil	thera	exin (konj)		na	od	<4w	once	na	own	own	71	763
		Kamillentee	HSHR	flo	bo	wat (inf)	sens	sheep	juvenil	thera	exin (konj)		na	od	<4w	2-5x	na	own	own	71	764
		Kamillentee	HSHR	flo	wh	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.235		od	<5y	<10x	56	vet	vet	63	621
		Kamillentee	HSHR	flo	wh	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.314		rd	>10y	never	100	cour	cour	28	290
		Kamillentee	HSHR	flo	wh	wat (dec)	gastr	pig	juvenil	proph	int (oral)	na		ew	>10y	never	100	fam	fam	20	217
		Kamillentee	HSHR	flo	wh	wat (inf)	resp	cattle	juvenil	thera	int (oral)	4.706		od	<1y	<10x	83	fam	fam	34	339
		Kamillentee	MHSHR	flo	wh	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.553		rd	>10y	never	100	fam	fam	18	191
		Kamillentee für kleine Kälber	HSHR	flo	wh	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.157		rd	>10y	never	100	cour	cour	28	291

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Kamillentee süß	MHSHR	flo	wh	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	1.141		rd	>10y	never	58	fam	fam	15	166
		Kamillen Tinktur	HSHR	flo	wh	alcohol (rt)	skin	horse	all	thera	exal (epicutan)		na	na	<5y	<10x	74	own	others	64	635
	Senecio alpinus (L.) Scop.	Alpenkreuzkraut	HSHR	rot	wh	oil/fat (rt)	skin	cattle	adult	thera	exal (epicutan)		na	na	na	na	na	fri	fri	67	694
		Alpenkreuzkraut	HSHR	rot	wh	oil/fat (rt)	para	cattle	adult	thera	exal (epicutan)		na	na	never	never	na	fri	fri	67	693
	Silybum marianum (L.) Gaertn.	Mariendistelsamen	HSHR	fsb	bo	none	gastr	cattle	adult	thera	int (oral)	0.09		od	<1y	once	92	cour	cour	2	22
	Tanacetum parthenium (L.) SCH. BIP.	Rainfarn	HSHR	her	wh	none	gastr	sheep	adult	proph	int (oral)	na		na	<7d	<10x	na	fam	fam	71	754
	Taraxacum officinale F.H.Wigg.	Löwenzahnschnaps	HSHR	flo	wh	alcohol (et)	gastr	cattle	juvenil	thera	int (oral)	0.016		od	<5y	<10x	87	book	cour	32	328
		Löwenzahnschnaps	HSHR	flo	wh	alcohol (et)	gastr	cattle	adult	thera	int (oral)	0.019		od	<5y	<10x	87	book	cour	32	329
		Löwenzahnwurzel	HSHR	rot	bo	none	gastr	cattle	juvenil	thera	int (oral)	0.078		od	<1y	<10x	72	book	book	43	411
	Tussilago farfara L.	Huflattich	HSHR	lea	wh	none	resp	cattle	all	proph	int (oral)	na		na	>10y	never	50	book	book	22	230
		Huflattichtee	MHSHR	flo	wh	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.341		rd	<5y	2-5x	100	fri	fri	51	480
Berberidaceae	*Mahonia aquifolium* (Pursh)Nutt.	stechblättrige Mahonie	HSHR	twb	wh	none	para	cattle	juvenil	thera	tohe		na	od	<10y	never	10	mag	mag	15	169
Boraginaceae	*Symphytum officinale* L.	Beinwell geschnitten	HSHR	lea	wh	none	streng	hen	all	proph	int (oral)	na		na	>10y	never	97	fri	fri	37	361
		Beinwell pur	HSHR	rot	wh	none	musc	hen	juvenil	thera	exin (epicutan)		20.0	na	<5y	once	99	book	book	72	774
		Beinwell pur	HSHR	rot	wh	none	musc	sheep	all	thera	exin (epicutan)		20.0	na	<5y	2-5x	97	book	book	72	775
		Beinwell pur	HSHR	rot	wh	none	musc	goat	all	thera	exin (epicutan)		20.0	na	<5y	2-5x	97	book	book	72	776

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Beinwell-blätter	HSHR	lea	cu	none	skin	sheep	adult	proph	int (oral)	na		na	>10y	never	99	book	book	37	360
	d	Beinwellpaste	HSHR	rot	wh	wat (inf)	musc	cattle	all	thera	exin (epicutan)		na	na	>10y	never	73	book	book	62	603
		Beinwellsalbe	HSHR	rot	bo	oil/fat (et)	mast	cattle	adult	thera	exin (epicutan)		8.3	od	<7d	<10x	100	fam	fam	13	153
		Beinwellsalbe	HSHR	rot	wh	oil/fat (rt)	musc	cattle	all	thera	exin (epicutan)		4.5	od	never	never	na	cour	cour	77	838
		Beinwell Tinktur	HSHR	rot	wh	alcohol (rt)	skin	sheep	all	thera	exin (epicutan)		na	na	>10y	never	85	book	book	37	359
		Beinwell Tinktur	HSHR	rot	cu	alcohol (rt)	skin	dog	juvenil	thera	exin (epicutan)		na	od	<5y	2-5x	72	fri	fri	19	197
		Beinwellwurzel und Blätter	HSHR	lear	cu	none	skin	horse	adult	thera	exin (epicutan)		20.0	na	>10y	never	100	book	book	37	363
		Beinwellwurzel und Blätter	HSHR	lear	cu	none	skin	sheep	adult	thera	exin (epicutan)		20.0	na	>10y	never	96	book	book	37	362
		Konfeitee	HSHR	lea	wh	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	1.412		od	<10y	never	67	fri	fri	19	198
Brassicaceae	*Armoracia rusticana* G.Gaertn., B.Mey. & Scherb.	Meerrettich	HSHR	rot	bo*	none	gastr	pig	juvenil	thera	int (oral)	na		na	never	never	na	fri	fri	35	343
		Meerrettich	HSHR	rot	bo	none	resp	horse	adult	thera	int (oral)	0.544		ew	<1y	<10x	100	own	book	64	645
		Meerrettich	HSHR	rot	bo	none	resp	cattle	juvenil	proph	int (oral)	0.024		od	<7d	<10x	100	cour	book	36	349
		Meerrettich	HSHR	rot	bo	none	resp	cattle	adult	proph	int (oral)	0.047		od	<7d	<10x	100	cour	book	36	348
		Meerrettich	HSHR	rot	cu	salt	resp	cattle	juvenil	proph	int (oral)	na		od	<1y	<10x	na	others	others	57	549
	Brassica napus L. emend. Metzg.	weiße Rübensamen-schnaps	HSHR	fsb	bo	alcohol (rt)	gastr	cattle	adult	thera	int (oral)	na		od	>10y	never	95	fri	fri	20	221
	Brassica oleracea L.	Kohl	HSHR	lea	bo	none	musc	cattle	all	thera	exin (epicutan)		da	na	<10y	never	na	book	book	68	717

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Ori-gin	Extract. on farm	Cate-gories of use	Anim. spec.	Animal age	Type of use	Admi-nistra-tion	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	UR N
	(convar. capitata var. Alba)																				
Burseraceae	*Boswellia sacra* Flück.	Weihrauch-salbe	HSHR	exc	bo	oil/fat (et)	mast	cattle	adult	thera	exin (epicutan)		na	na	<1y	<10x	81	fri	fri	68	719
Cannabaceae	*Cannabis sativa* L.	Hanf	HSHR	her	bo*	none	gastr	cattle	juvenil	thera	int (oral)	1.569		od	<7d	<10x	74	own	vet	11	113
		Hanf	HSHR	her	bo*	none	gastr	cattle	juvenil	thera	int (oral)	1.569		od	<7d	<10x	100	own	vet	11	114
Chlorellaceae	*Chlorella* Beij.	Algen	HSHR	na	bo*	none	gastr	cattle	juvenil	proph	int (oral)	0.071		od	<7d	<10x	86	book	book	11	110
Cupressaceae	*Thuja occidentalis* L.	Thuja	HSHR	twb	cu	wat (dec)	infer	cattle	adult	thera	int (oral)	0.023		od	>10y	never	na	fam	fam	75	811
		Thuja Tinktur	HSHR	lea	bo*	alcohol	skin	dog	adult	thera	exal (epicutan)		na	na	<1y	<10x	74	book	book	73	783
		Thuja Tinktur	HSHR	lea	bo*	alcohol	skin	cattle	adult	thera	exal (epicutan)		na	na	<10y	never	100	fri	fri	55	532
Droseraceae	*Drosera anglica* Huds.	Stierkraut	HSHR	lea	wh	none	infer	horse	adult	proph	int (oral)	na		na	<10y	never	90	fam	fam	62	613
		Stierkraut	HSHR	lea	wh	none	infer	cattle	adult	thera	int (oral)	na		na	<5y	<10x	85	fam	fam	62	612
Equisetaceae	*Equisetum arvense* L.	Katzentee drei	HSHR	her	wh	wat (inf)	resp	cat	adult	thera	int (oral)	na		od	<1y	<10x	82	vet	own	64	650
Ericaceae	*Vaccinium myrtillus* L.	Blaubeere	HSHR	fsb	cu	none	gastr	cattle	juvenil	thera	int (oral)	na		na	never	never	na	fri	fri	30	303
		Heidelbeere	HSHR	fsb	wh	none	gastr	cattle	juvenil	thera	int (oral)	0.078		ew	<1y	<10x	91	cour	cour	37	370
Euphorbiaceae	*Mallotus philippinensis* (Lam.)Müll.Arg.	Kamala	HSHR	frh	bo*	none	gastr	sheep	juvenil	thera	int (oral)	0.211		od	<1y	2-5x	na	fri	fri	23	252
		Kamala	HSHR	frh	bo*	none	gastr	sheep	adult	thera	int (oral)	0.37		od	<1y	2-5x	na	fri	fri	23	251
		Kamala	HSHR	frh	bo*	none	para	hen	adult	thera	int (oral)	0.8		ew	<1y	2-5x	100	fri	book	29	294
		Kamala	HSHR	frh	bo*	none	para	cat	adult	proph	int (oral)	0.299		od	<7d	6-9x	10	cour	cour	74	790

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Kamala	HSHR	frh	bo*	none	para	cattle	juvenil	thera	int (oral)	na		na	<1y	<10x	na	fri	fri	1	853
		Kamala	HSHR	frh	bo*	none	para	cattle	juvenil	proph	int (oral)	0.784		od	<1y	<10x	100	fri	fri	31	320
		Kamala	HSHR	frh	bo*	none	para	cattle	adult	proph	int (oral)	0.171		od	<1y	<10x	10	cour	cour	74	791
		Kamala	HSHR	frh	bo*	none	para	cattle	adult	proph	int (oral)	0.171		od	<1y	<10x	10	cour	cour	74	792
		Kamala	HSHR	frh	bo*	none	para	cattle	adult	proph	int (oral)	0.194		ew	<1y	<10x	89	cour	cour	12	130
		Kamala	HSHR	frh	bo*	none	para	sheep	juvenil	thera	int (oral)	0.078		od	<1y	2-5x	na	fri	fri	23	249
		Kamala	HSHR	frh	bo*	none	para	sheep	adult	thera	int (oral)	0.37		od	<1y	2-5x	na	fri	fri	23	250
	Ricinus communis L.	Rizinusöl	HSHR	fsb	bo*	none	gastr	dog	adult	thera	int (oral)	7.143		od	>10y	never	85	cour	cour	20	214
		Rizinusöl	HSHR	fsb	bo*	none	gastr	pig	juvenil	thera	int (oral)	1.88		od	>10y	never	84	own	cour	20	215
Fabaceae	*Anthyllis vulneraria* L.	Wundklee-tinktur	HSHR	flo	wh	alcohol (rt)	skin	cattle	all	thera	exal (epicutan)		na	od	<1y	<10x	77	own	own	60	588
	Medicago sativa L.	Luzerneheu	HSHR	her	cu	none	resp	cattle	juvenil	proph	int (oral)	na		na	<7d	<10x	94	own	own	43	414
	Onobrychis viciifolia Scop.	Esparsette	HSHR	her	cu	none	para	cattle	all	proph	int (oral)	na		na	never	never	na	book	book	50	467
		Esparsette	HSHR	her	cu	none	para	sheep	all	thera	int (oral)	na		na	<1y	6-9x	90	others	others	71	746
	Pisum sativum L. s. l.	Erbsenstroh	HSHR	stm	cu	none	streng	goat	all	proph	int (oral)	na		na	<7d	<10x	99	own	own	39	387
	Trigonella foenum-graecum L.	Bockshornklee	HSHR	fsb	bo	wat (rt)	mast	cattle	adult	thera	exal (epicutan)		20.0	od	<1y	<10x	99	book	own	31	322
		Bockshornklee-umschlag	HSHR	fsb	bo	wat (rt)	skin	cattle	all	thera	exin (epicutan)		20.0	na	na	na	92	fri	fri	67	703
		Bockshornklee-umschlag	HSHR	fsb	bo	wat (rt)	skin	cattle	juvenil	thera	exal (epicutan)		20.0	na	na	na	92	fri	fri	67	704
	Vicia faba L.	Ackerbohnen-stroh	HSHR	stm	cu	none	streng	cattle	all	proph	int (oral)	na		na	<10y	never	na	fri	fri	39	388

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extraction farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
Fagaceae	*Quercus robur* L.	Eichelntee	HSHR	fsb	wh	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	na		na	never	never	na	fri	fri	18	193
		Eichenrinde	HSHR	bar	bo	wat (dec)	gastr	cattle	juvenil	proph	int (oral)	0.004		od	<7d	<10x	100	book	book	36	346
		Eichenrinde	HSHR	bar	wh	none	gastr	cattle	juvenil	thera	int (oral)	na		na	>10y	never	na	fam	fam	24	256
		Eichenrinde	HSHR	bar	wh	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	2.976		od	<5y	<10x	100	adv	adv	57	543
		Eichenrinde	HSHR	bar	wh	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	0.079		rd	<4w	<10x	76	fam	fam	31	326
		Eichenrinden-durchfallpulver	MHSHR	bar	bo*	none	gastr	cattle	juvenil	proph	int (oral)	0.549		ew	<1y	<10x	67	fri	fri	7	143
		Eichenrinden-pulver	HSHR	bar	bo	none	gastr	cattle	adult	thera	int (oral)	0.124		od	<5y	<10x	83	vet	book	70	728
		Eichenrinden-sud	HSHR	bar	wh	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	na		na	never	never	na	fri	fri	69	726
		Eichenrinden-tee	HSHR	bar	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.275		od	<7d	2-5x	100	fri	fri	4	42
		Eichenrinden-tee	HSHR	bar	bo	wat (dec)	gastr	cattle	juvenil	proph	int (oral)	0.157		od	<7d	6-9x	na	cour	cour	40	395
		Eichenrinden-tee	HSHR	bar	wh	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	na		od	>10y	never	72	fam	fam	16	182
		Eichensud	HSHR	bar	bo	wat (dec)	skin	cattle	adult	thera	exal (epicutan)		na	na	<5y	once	72	cour	cour	70	731
Fomitopsidaceae	*Piptoporus betulinus* Bull.	Birkenporling	HSHR	na	wh	wat (rt)	streng	horse	adult	proph	int (oral)	0.021		ew	<7d	once	na	book	book	22	227
Gentianaceae	*Gentiana lutea* L.	Enziantee	HSHR	rot	bo	wat (inf)	streng	cattle	adult	thera	int (oral)	0.03		od	<7d	<10x	100	book	book	36	353
Geraniaceae	*Geranium robertianum* L.	Storchen-schnabel	HSHR	flo	bo	none	infer	cattle	adult	thera	int (oral)	0.037		rd	>10y	never	100	na	na	31	325
Hypericaceae	*Hypericum perforatum* L.	Johanniskraut-buschen	HSHR	her	wh	none	streng	cattle	all	proph	tohe		da	na	<7d	<10x	na	na	na	52	491
		Johanniskraut-creme	MHSHR	flo	wh	oil/fat (et)	musc	cattle	adult	thera	exin (epicutan)		na	na	4	6-9x	68	cour	cour	2	23

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	skin	dog	adult	thera	exal (epicutan)		na	na	>10y	never	97	fam	fam	72	772
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	skin	dog	adult	thera	exal (epicutan)		na	na	>10y	never	97	fam	fam	72	773
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	skin	cattle	adult	thera	exal (epicutan)		na	na	>10y	never	98	own	book	54	507
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	mast	cattle	adult	thera	exal (epicutan)		na	na	<1y	<10x	6	own	book	54	508
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	mast	cattle	adult	thera	exal (epicutan)		na	na	<1y	<10x	6	own	book	54	509
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	mast	cattle	adult	thera	exal (epicutan)		na	od	>10y	never	na	book	book	19	196
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	musc	sheep	all	thera	exal (epicutan)		na	na	<10y	never	39	fam	fam	72	771
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	para	cattle	adult	proph	int (vaut)	na		na	>10y	never	97	fam	fam	74	801
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	infer	cattle	adult	proph	int (vaut)	na		na	<4w	<10x	100	fam	fam	74	802
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	infer	cattle	adult	thera	exin (epicutan)		na	od	>10y	never	na	book	book	57	544
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	mast	cattle	adult	thera	exin (epicutan)		na	od	<1y	<10x	95	book	book	57	545
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	musc	cattle	adult	thera	exin (epicutan)		na	na	<1y	<10x	95	cour	cour	77	836
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	skin	cattle	adult	thera	exin (epicutan)		na	na	<5y	2-5x	97	fri	fri	65	656
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	skin	cattle	all	thera	exin (epicutan)		na	na	<5y	2-5x	97	fam	fam	8	73
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	skin	cattle	adult	thera	exin (epicutan)		na	na	<5y	once	91	fri	fri	65	657
		Johanniskraut-öl	HSHR	flo	wh	oil/fat (rt)	skin	cattle	adult	thera	exal (epicutan)		na	na	>10y	never	63	own	book	54	506
		Johanniskraut-öl als Leinölauszug	HSHR	flo	wh	oil/fat (rt)	skin	cattle	adult	thera	exal (epicutan)		na	od	<7d	<10x	100	book	own	9	78

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extraction farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Johanniskraut-öl als Olivenölauszug	HSHR	flo	wh	oil/fat (rt)	skin	cattle	all	thera	exal (epicutan)		na	od	<7d	<10x	100	fam	fam	9	77
		Johanniskraut Tinktur	HSHR	flo	wh	alcohol (rt)	skin	goat	all	thera	exin (epicutan)		na	na	<1y	<10x	74	own	others	64	636
Juglandaceae	*Juglans regia* L.	Nussblätter	HSHR	lea	cu	none	para	cattle	adult	proph	int (oral)	na		na	<7d	<10x	99	fri	fri	3	25
		Nussblätter	HSHR	lea	cu	none	para	pig	adult	thera	int (oral)	na		na	<10y	once	93	fri	fri	3	26
		Walnussblätter	HSHR	lea	wh	none	para	hen	all	proph	int (oral)	na		na	<1y	<10x	na	book	own	71	757
		Walnussblätter	HSHR	lea	wh	none	para	sheep	all	proph	int (oral)	na		na	<1y	<10x	na	book	own	71	758
		Walnussblätter	HSHR	lea	cu	none	para	donkey	adult	thera	int (oral)	na		na	<1y	<10x	100	na	na	45	436
		Walnussblätter	HSHR	twb	rec	none	gastr	cattle	adult	proph	int (oral)	na		od	<1y	2-5x	90	cour	book	12	132
		Walnüsse	HSHR	fsb	cu	oil/fat (rt)	para	cattle	adult	proph	exin (epicutan)		na	od	<1y	<10x	86	book	own	12	131
		Welschnusslikör	MHSHR	fsb	wh	alcohol (rt)	gastr	cattle	juvenil	thera	int (oral)	0.011		ew	<4w	<10x	81	book	book	60	584
Lamiaceae	*Lavandula angustifolia* Mill.	EM-Lavendel Dipmittel	MHSHR	her	bo*	wat	mast	cattle	adult	proph	exin (epicutan)		na	od	<7d	<10x	90	own	cour	50	881
	Mentha x piperita L.	Pfefferminze	HSHR	lea	bo	wat (inf)	streng	hen	all	proph	int (oral)	na		od	<4w	<10x	na	own	own	64	640
		Pfefferminze	MHSHR	lea	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.235		ew	<1y	2-5x	76	fam	fam	5	50
		Pfefferminz-salbe	HSHR	lea	bo*	wat	mast	cattle	adult	thera	exin (epicutan)	na		na	<1y	<10x	96	fri	fri	17	188
		Chinaminz-Öl	HSHR	her	bo*	wat	resp	cattle	juvenil	thera	int (nasal)	0.392		od	>10y	never	na	fam	fam	58	568
	Origanum vulgare L.	Oreganosalbe	HSHR	her	bo*	oil/fat	mast	cattle	adult	thera	exin (epicutan)		na	od	<5y	once	70	own	book	65	674
	Salvia officinalis L.	Gartensalbei	HSHR	her	cu	none	streng	cattle	juvenil	proph	int (oral)	na		na	<5y	once	na	own	own	43	410

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Ori-gin	Extract. on farm	Cate-gories of use	Anim. spec.	Animal age	Type of use	Admi-nistra-tion	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	UR N
		Katzentee eins	HSHR	lea	cu	wat (inf)	resp	cat	all	thera	int (oral)	na		od	<4w	<10x	82	vet	own	64	648
		Salbeikraut	HSHR	her	wh	none	streng	hen	adult	thera	int (oral)	24.3		od	<1y	<10x	76	own	own	64	643
		Salbei-räucherung	HSHR	her	cu	none	resp	cattle	all	proph	tohe	na		od	<7d	<10x	96	cour	cour	27	277
		Salbei-räucherung	HSHR	her	cu	none	resp	goat	all	proph	tohe	na		od	<7d	<10x	96	cour	cour	27	276
		Salbeitee	HSHR	her	wh	wat (inf)	resp	horse	adult	thera	int (oral)	0.168		od	<1y	<10x	87	own	own	64	644
Lauraceae	*Cinnamomum camphora* (L.) J.Presl.	Kampfersalbe	HSHR	twb	bo*	oil/fat	mast	cattle	all	thera	exin (epicutan)		22.0	od	>10y	never	83	fam	fam	77	849
		Kampfersalbe	HSHR	twb	bo*	oil/fat	mast	cattle	all	thera	exin (epicutan)		22.0	od	>10y	never	88	fam	fam	77	848
		Kampfersalbe	HSHR	twb	bo*	oil/fat	skin	cattle	adult	thera	exin (epicutan)		10.0	na	never	never	na	fam	fam	9	148
		Kampfersalbe	HSHR	twb	bo*	oil/fat	mast	cattle	adult	thera	exin (epicutan)		na	na	never	never	na	fam	fam	21	224
	Laurus nobilis L.	Bremsenschutz	HSHR	fsb	bo*	oil/fat	para	horse	all	proph	exin (epicutan)		na	na	never	never	na	fam	fam	77	850
		Bremsenschutz	HSHR	fsb	bo*	oil/fat	para	cattle	all	thera	exin (epicutan)		na	na	<5y	2-5x	na	fam	fam	77	851
Lichen	*Bactrospora dryina*	Eichen"moos"	HSHR	na	wh	none	gastr	cattle	juvenil	thera	int (oral)	0.142		od	>10y	never	97	fam	fam	18	190
Liliaceae	*Lilium candidum* L.	Ilgenöl	HSHR	flo	cu	oil/fat (rt)	skin	cattle	adult	thera	exal (epicutan)		na	od	<5y	<10x	95	fam	fam	19	199
Linaceae	*Linum usitatissimum* L.	Goldener Leinsamen	HSHR	fsb	bo	none	gastr	cattle	adult	thera	int (oral)	1.554		od	<1y	once	97	own	book	65	659
		Goldener Leinsamen	HSHR	fsb	bo	none	gastr	cattle	adult	proph	int (oral)	1.554		od	<7d	<10x	97	own	book	65	660
		Lein	HSHR	fsb	bo	wat (dec)	gastr	cattle	adult	proph	int (oral)	na		na	<7d	<10x	100	fri	fri	72	780
		Lein	HSHR	fsb	bo	wat (dec)	streng	cattle	adult	proph	int (oral)	na		na	never	never	na	cour	cour	20	212

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Lein	HSHR	fsb	bo	wat (rt)	streng	cattle	juvenil	proph	int (oral)	0.824		od	>10y	never	80	fri	fri	68	714
		Lein	HSHR	fsb	cu	milk (rt)	gastr	cattle	juvenil	proph	int (oral)	1.569		ew	>10y	never	62	fam	fam	21	225
		Lein mit Ei	MHSHR	fsb	bo	wat (rt)	streng	cattle	adult	proph	int (oral)	7.742		od	never	never	38	fri	fri	20	220
		Leinsaat	MHSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	na		na	>10y	never	na	vet	vet	65	658
		Leinsamen	HSHR	fsb	bo	wat (rt)	streng	pig	adult	proph	int (oral)	1.88		od	>10y	never	88	na	na	20	213
		Leinsamen	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	0.118		rd	<5y	once	98	fri	fam	7	63
		Leinsamen	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	0.282		od	<4w	<10x	55	fam	fam	8	75
		Leinsamen	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	0.471		od	>10y	never	na	fam	fam	6	55
		Leinsamen	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	1.38		od	>10y	never	16	vet	vet	56	537
		Leinsamen	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	proph	int (oral)	0.157		od	<1y	<10x	60	fam	fam	42	404
		Leinsamen-bruch	HSHR	fsb	bo	wat (rt)	gastr	cattle	juvenil	proph	int (oral)	8.659		od	<10y	never	89	fam	fam	6	56
		Leinsamen-schleim	HSHR	fsb	bo	wat (dec)	streng	cattle	adult	proph	int (oral)	na		na	>10y	never	na	fam	fam	48	458
		Leinsamen-schleim	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	6.388		od	<1y	<10x	98	cour	cour	24	258
		Leinsamen-schleim	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	4.259		od	<1y	<10x	98	cour	cour	24	259
		Leinsamen-schleim	HSHR	fsb	bo	wat (dec)	gastr	cattle	adult	thera	int (oral)	na		na	<10y	never	na	fam	fam	15	170
		Leinsamen-schleim	HSHR	fsb	bo	wat (dec)	skin	cattle	adult	thera	int (oral)	0.272		ew	<10y	never	na	vet	vet	65	653
		Leinsamen-schleim	HSHR	fsb	bo	wat (dec)	skin	cattle	adult	thera	exin (epicutan)		0.7	ew	>10y	never	na	vet	vet	65	654
		Leinsamen-schleim	HSHR	fsb	bo	wat (dec)	gastr	cattle	adult	thera	exin (epicutan)		0.7	ew	>10y	never	84	vet	vet	65	655

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Ori-gin	Extract. on farm	Cate-gories of use	Anim. spec.	Animal age	Type of use	Admi-nistra-tion	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	UR N
		Leinsamen-schleim	HSHR	fsb	cu	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	0.157		ew	>10y	never	94	fam	fam	21	226
		Leinsamen-schleim	MHSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	3.922		rd	<1y	<10x	49	fam	fam	3	24
		Leinsamen-trank	HSHR	fsb	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	94.118		od	<5y	2-5x	86	fam	fam	66	677
		Leinsamen-trank	HSHR	fsb	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	94.118		od	<5y	2-5x	86	fam	fam	66	678
		Leinschleim	HSHR	fsb	bo	wat (dec)	streng	cattle	juvenil	proph	int (oral)	na		od	>10y	never	na	fam	fam	75	821
		Leinschrot	HSHR	fsb	bo	none	gastr	goat	all	thera	int (oral)	na		ew	<7d	<10x	100	fam	fam	39	384
		Leinverband	HSHR	fsb	bo	wat (dec)	skin	cattle	adult	thera	exal (epicutan)		3.8	na	>10y	never	10	fam	fam	75	818
		Leinverband	HSHR	fsb	bo	wat (dec)	skin	cattle	adult	thera	exal (epicutan)		3.8	na	>10y	never	10	fam	fam	75	820
		Leinverband	HSHR	fsb	bo	wat (dec)	musc	cattle	adult	thera	exin (epicutan)		3.8	na	>10y	never	10	fam	fam	75	819
Malvaceae	*Cola acuminata* (P.Beauv.) Schott & Endl.	Cola noname	HSHR	fsb	bo*	none	streng	cattle	adult	thera	int (oral)	na		na	<5y	2-5x	50	fri	fri	13	155
Musaceae	*Musa* L.	Banane	HSHR	fsb	bo	none	gastr	cattle	juvenil	thera	int (oral)	1.569		ew	<1y	<10x	91	fam	fam	5	44
		Bananen	HSHR	fsb	bo	none	gastr	sheep	all	thera	int (oral)	2.118		ew	<7d	once	90	book	book	71	745
Myrtaceae	*Melaleuca alternifolia* (Maiden & Betche) Cheel	Teebaumöl	HSHR	lea	bo*	wat	skin	cattle	all	thera	exal (epicutan)		da	od	<1y	2-5x	86	fri	fri	1	2
		Teebaumöl	HSHR	lea	bo*	wat	skin	cattle	juvenil	proph	exal (epicutan)		0.5	od	<7d	<10x	54	own	cour	56	533
		Teebaumöl	HSHR	lea	bo*	wat	skin	cattle	adult	thera	exal (epicutan)		0.5	od	<5y	once	91	own	cour	56	534
		Teebaumöl	HSHR	lea	bo*	wat	para	dog	adult	thera	exin (epicutan)		da	od	<5y	<10x	91	own	own	64	631

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Teebaumöl-salbe	HSHR	lea	bo*	wat	para	horse	adult	proph	exin (epicutan)		0.6	od	<4w	<10x	99	own	own	64	630
		Teebaumöl	HSHR	lea	bo*	wat	mast	cattle	adult	thera	exin (epicutan)		da	na	<1y	<10x	68	cour	fam	5	49
		Teebaumöl	HSHR	lea	bo*	wat	mast	cattle	adult	proph	exin (epicutan)		da	na	<5y	2-5x	57	cour	fam	5	48
Oleaceae	*Fraxinus excelsior* L.	Esche	HSHR	twb	cu	none	gastr	cattle	juvenil	proph	int (oral)	na		od	<1y	2-5x	82	own	fam	12	133
Orobanchaceae	*Euphrasia rostkoviana* Hayne	Augentrost	HSHR	her	bo*	wat	sens	dog	adult	thera	exal (konj)		na	na	<5y	once	78	fri	fri	72	769
		Augentrost	HSHR	her	bo*	wat	sens	sheep	all	thera	exal (konj)		na	na	<5y	2-5x	78	fri	fri	72	770
		Augentrost	HSHR	her	wh	alcohol (rt)	sens	dog	adult	thera	exin (konj)		na	na	<1y	<10x	79	own	others	73	784
Papaveraceae	*Chelidonium majus* L.	Schöllkraut	HSHR	wpr	wh	none	skin	cattle	adult	thera	exal (epicutan)		20.0	od	<5y	once	99	mag	mag	17	183
		Schöllkraut	HSHR	wpr	wh	none	varia	horse	adult	thera	exal (epicutan)		20.0	na	<10y	never	98	others	others	37	358
		Schöllkraut	HSHR	stm	wh	none	skin	cattle	adult	thera	exal (epicutan)		20.0	na	>10y	never	na	fam	fam	77	847
		Schöllkraut	HSHR	stm	wh	oil/fat (rt)	skin	cattle	adult	thera	exal (epicutan)		12.5	od	<4w	<10x	81	book	book	10	94
		Schöllkraut Tinktur	HSHR	wpr	wh	alcohol (rt)	skin	cattle	adult	thera	exal (epicutan)		na	na	<5y	<10x	98	book	book	25	265
		Schöllkraut Tinktur	HSHR	her	wh	alcohol (rt)	skin	horse	adult	thera	exal (epicutan)		na	na	<1y	once	94	book	book	64	637
Papaveraceae	*Sanguinaria Canadensis* L.	XXTerraSalbe	MHSHR	rot	bo*	wat	varia	horse	adult	thera	exal (epicutan)		na	na	<10y	never	100	vet	vet	37	357
Phytolaccaceae	*Phytolacca americana* L.	Kermesbeeren Phytolacca	HSHR	fsb	bo*	wat	mast	cattle	adult	proph	int (oral)	0.000		na	<10y	never	100	book	book	55	531
Pinaceae	*Abies alba* Mill.	Tannenharz	HSHR	exc	wh	none	skin	dog	adult	thera	exal (epicutan)		na	na	4	once	50	fam	fam	3	29
		Tannenspitzen tee	HSHR	twb	wh	wat (dec)	gastr	sheep	juvenil	thera	int (oral)	0.263		od	<4w	2-5x	95	book	book	71	749

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extraction farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Weißdaß	HSHR	twb	wh	milk (rt)	gastr	cattle	juvenil	thera	int (oral)	39.216		od	4	once	39	fri	fri	1	13
		Weißdaß	HSHR	twb	wh	milk (rt)	resp	cattle	juvenil	thera	int (oral)	39.216		od	4	once	60	fri	fri	1	12
		Woasdass	HSHR	twb	wh	none	para	donkey	adult	proph	int (oral)	na		na	<1y	<10x	67	fri	fri	52	485
		Woasdass	HSHR	twb	wh	none	para	cattle	adult	proph	int (oral)	na		na	<1y	<10x	67	fri	book	52	484
		Woasdass	HSHR	twb	wh	none	para	sheep	adult	proph	int (oral)	na		na	<1y	<10x	67	fri	fri	52	486
Pinaceae	*Larix decidua* Mill.	Lärchenharz Tinktur	HSHR	exc	wh	alcohol (rt)	streng	cattle	juvenil	thera	int (oral)	na		na	<5y	<10x	na	fri	fri	75	809
Pinaceae	*Picea abies* (L.) H.Karst.	Fichte	HSHR	twb	wh	none	para	horse	adult	proph	int (oral)	na		na	<1y	2-5x	83	own	others	12	126
		Fichte	HSHR	twb	wh	none	para	cattle	all	proph	int (oral)	na		na	<1y	2-5x	87	own	own	12	127
		Fichtenharz Tinktur	HSHR	exc	wh	alcohol (rt)	skin	cattle	all	thera	exal (epicutan)		da	od	<1y	<10x	79	own	cour	60	586
		Fichtenharz Tinktur	HSHR	exc	wh	alcohol (rt)	skin	cattle	adult	thera	exin (epicutan)		da	od	<1y	<10x	77	own	cour	60	587
		Fichtenpech-salbe	HSHR	exc	wh	oil/fat (rt)	skin	goat	juvenil	thera	exal (epicutan)		na	na	<1y	once	na	book	book	39	392
		Fichten-sägespäne	HSHR	twb	bo	none	resp	cattle	juvenil	proph	int (oral)	na		na	<1y	<10x	100	own	fri	11	109
		Fichtenspitzen	HSHR	twb	wh	none	resp	cattle	juvenil	proph	int (oral)	na		na	<5y	<10x	100	fri	fri	11	108
		Fichtenspitzen sirup	MHSHR	lea	wh	wat (dec)	resp	cattle	juvenil	thera	int (oral)	0.024		od	<5y	<10x	61	book	own	22	231
		Fichtenwipfel	HSHR	twb	wh	none	resp	cattle	juvenil	proph	tohe	na		na	<1y	<10x	na	fri	fri	50	468
		Fichtenzweige	HSHR	twb	wh	none	para	sheep	adult	proph	int (oral)	na		na	<1y	2-5x	na	cour	cour	23	248
		Harz	HSHR	exc	wh	none	skin	dog	adult	thera	exal (epicutan)		da	na	<5y	once	100	fam	fam	3	28
		Stullmisan	HSHR	twb	bo*	wat	gastr	cattle	juvenil	thera	int (oral)	0.243		od	<1y	<10x	na	vet	vet	66	680

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extraction farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Stullmisan	HSHR	twb	bo*	wat	gastr	cattle	juvenil	thera	int (oral)	0.001		ew	<5y	<10x	na	vet	vet	37	373
		Stullmisan	HSHR	twb	bo*	wat	gastr	sheep	juvenil	thera	int (oral)	0.193		od	<7d	<10x	88	vet	vet	71	750
Pinaceae	*Pinus mugo* Turra	Latschen-kiefernöl	HSHR	lea	bo*	wat	resp	cattle	all	thera	tohe		na	na	<5y	<10x	na	book	book	10	95
Plantaginaceae	*Plantago lanceolata* L.	Spitzwegerich	HSHR	lea	wh	none	skin	dog	adult	thera	exin (epicutan)		da	na	<1y	2-5x	83	fam	fam	72	765
		Spitzwegerich-sirup	MHSHR	lea	wh	wat (dec)	resp	cattle	juvenil	thera	int (oral)	0.01		od	<5y	once	100	own	cour	31	324
		Spitzwegerich-tee	HSHR	lea	bo	wat (inf)	resp	cattle	juvenil	thera	int (oral)	0.424		od	<5y	<10x	53	fam	fam	30	300
		Spitzwegerich-tee	HSHR	lea	wh	wat (inf)	resp	cattle	juvenil	thera	int (oral)	0.063		od	<10y	never	73	own	own	68	716
		Spitzwegerich-verband	HSHR	lea	wh	none	skin	cattle	adult	thera	exal (epicutan)		da	na	>10y	never	25	fam	fam	21	223
Poaceae	*Avena sativa* L.	Getreide-keimlinge	HSHR	fsb	cu	wat (rt)	streng	hen	adult	proph	int (oral)	na		na	>10y	never	100	fam	fam	20	218
		Hafer	HSHR	fsb	bo	none	infer	cattle	adult	proph	int (oral)	na		od	>10y	never	98	vet	vet	33	336
		Hafer	HSHR	fsb	bo	none	infer	pig	adult	proph	int (oral)	na		od	<10y	never	98	vet	vet	33	337
		Haferbrei	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	3.937		od	<5y	<10x	95	others	others	24	257
		Haferschleim	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	0.451		od	<4w	once	100	fam	fam	8	74
		Haferschleim	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	13.931		rd	<7d	<10x	100	fam	fam	15	168
		Haferschleim	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	61.34		od	>10y	never	65	own	own	44	420
		Haferschleim	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	proph	int (oral)	0.51		od	<4w	<10x	64	own	cour	44	421
		Haferschleim	MHSHR	fsb	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	21.609		od	<7d	once	87	vet	vet	30	305
		Haferschrot	HSHR	fsb	cu	none	infer	cattle	adult	proph	int (oral)	na		na	>10y	never	86	cour	cour	20	209

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Ori-gin	Extract. on farm	Cate-gories of use	Anim. spec.	Animal age	Type of use	Admi-nistra-tion	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	UR N
	Elymus repens L.	Quecken	HSHR	rot	wh	none	streng	dog	adult	proph	int (oral)	na		od	<5y	2-5x	na	mag	mag	72	768
	Hordeum vulgare L. S.L.	Gerstenwasser	HSHR	fsb	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	11.294		od	<1y	<10x	87	book	book	68	715
	Panicum miliaceum L.	Hirse	HSHR	fsb	bo	none	streng	donkey	adult	proph	int (oral)	1.88		ew	<4w	<10x	100	cour	cour	45	435
		Hirse	HSHR	fsb	bo	none	streng	sheep	adult	proph	int (oral)	3.843		ew	<4w	<10x	100	cour	cour	45	434
	Secale cereale L.	Mehlteiglein	MHSHR	fsb	bo	vinegar (rt)	mast	cattle	adult	thera	exin (epicutan)		50.0	od	<1y	<10x	78	cour	cour	5	47
		Mehlteiglein	MHSHR	fsb	cu	none	infer	cattle	adult	thera	int (vaut)	na		na	>10y	never	na	fam	fam	62	601
		Roggenmehl mit Honig	MHSHR	fsb	bo	none	skin	cattle	all	thera	exin (epicutan)		na	na	>10y	never	na	fam	fam	75	816
		Roggenmehl-teiglein	HSHR	fsb	bo	vinegar (rt)	mast	cattle	adult	thera	exin (epicutan)		na	na	never	never	na	fam	fam	75	817
		Roggenmehl-teiglein	HSHR	fsb	cu	wat (rt)	infer	cattle	adult	proph	int (vaut)	na		na	never	never	na	fam	fam	31	327
	Triticum aestivum L.	Essig 5%	MHSHR	fsb	bo	vinegar (rt)	mast	cattle	adult	thera	exin (epicutan)		na	od	>10y	never	79	cour	cour	9	82
		Vierermehl	HSHR	fsb	bo	wat (et)	streng	cattle	adult	proph	int (oral)	na		na	never	never	na	fri	fri	50	477
		Weizenmehl mit Essig	MHSHR	fsb	bo	wat (et)	skin	cattle	juvenil	thera	exal (epicutan)		na	od	<4w	<10x	97	book	book	46	443
		Weizenmehl mit Essig	MHSHR	fsb	bo	wat (et)	mast	cattle	adult	thera	exin (epicutan)		na	od	>10y	never	97	book	book	46	444
	Triticum aestivum spelta L.	Dinkelbrühe	MHSHR	fsb	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	13.308		od	<5y	once	100	book	own	26	270
Polygonaceae	*Rumex obtusifolius* L.	Ampfer	HSHR	lea	wh	none	skin	cattle	all	thera	exal (epicutan)		da	na	na	na	na	fri	fri	67	701
		Ampfer	HSHR	lea	wh	none	skin	cattle	adult	thera	exin (epicutan)		da	na	never	never	na	cour	cour	52	487
		Ampfer	HSHR	lea	wh	none	skin	cattle	adult	thera	exal (epicutan)		da	na	never	never	na	cour	cour	52	488

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
		Ampfer	MHSHR	fsb	wh	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.235		od	<10y	never	76	na	na	26	273
		Ampfer-umschlag	HSHR	lea	wh	none	musc	cattle	juvenil	thera	exin (epicutan)		da	od	>10y	never	78	book	book	22	237
		Wiesensauer-ampfer	HSHR	fsb	wh	none	gastr	cattle	juvenil	thera	int (oral)	0.333		od	>10y	never	95	fam	fam	46	446
Ranunculaceae	*Nigella sativa* L.	Schwarzkümmelöl	HSHR	fsb	bo*	none	streng	hen	adult	thera	int (oral)	2.5		od	<4w	<10x	99	book	own	71	740
		Schwarzkümmelöl	HSHR	fsb	bo*	none	streng	hen	adult	proph	int (oral)	2.5		od	<4w	<10x	99	book	own	71	741
		Schwarzkümmelöl	HSHR	fsb	bo*	none	gastr	cattle	juvenil	proph	int (oral)	0.11		od	<1y	2-5x	2	adv	adv	11	101
Rosaceae	*Crataegus laevigata* (Poir.) DC.	Weißdornast	HSHR	twb	wh	none	para	cattle	all	thera	tohe		na	na	never	never	na	book	book	25	263
	Filipendula ulmaria (L.) Maxim.	Mädesüßtee	HSHR	her	wh	wat (inf)	skin	cattle	adult	thera	exal (epicutan)		na	od	>10y	never	na	vet	vet	77	843
	Geum urbanum L.	Nelkenwurztee	MHSHR	rot	wh	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	1.941		od	<1y	<10x	82	cour	cour	2	20
	Malus domestica Borkh.	Boskopapfel	HSHR	fsb	cu	none	skin	cattle	all	thera	exal (epicutan)		da	od	<1y	2-5x	73	cour	cour	1	1
		fauler Apfel	HSHR	fsb	cu	none	para	cattle	all	thera	exal (epicutan)		da	na	<1y	once	90	cour	cour	37	366
		Fauliger Apfel	HSHR	fst	cu	none	para	cattle	juvenil	thera	exal (epicutan)		da	na	<5y	<10x	98	cour	cour	76	831
	Potentilla anserina L.	Blutwurz Tinktur	HSHR	rot	bo	alcohol (rt)	gastr	cattle	juvenil	thera	int (oral)	0.196		od	<4w	<10x	99	fri	fri	48	457
		Gänsefingerkraut	HSHR	her	wh	milk (et)	gastr	cattle	juvenil	thera	int (oral)	0.157		od	<5y	2-5x	80	fri	cour	12	136
		Igelkraut	HSHR	her	wh	milk (dec)	skin	cattle	all	thera	exin (epicutan)		na	od	<1y	2-5x	90	fri	fri	1	8

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
	Potentilla erecta (L.) Raeusch.	Blutwurz	HSHR	rot	bo	wat (dec)	gastr	cattle	juvenil	thera	int (oral)	0.01		od	>10y	never	99	fam	fam	75	827
		Blutwurz-schnaps	HSHR	rot	bo*	alcohol	gastr	cattle	juvenil	thera	int (oral)	na		od	never	never	na	fam	fam	74	799
		Blutwurz Tinktur	HSHR	rot	bo*	alcohol	gastr	cattle	juvenil	thera	int (oral)	na		na	<10y	never	na	book	book	50	471
	Pyrus communis L.	Birnensaft	HSHR	fsb	cu	none	gastr	cattle	juvenil	thera	int (oral)	0.471		od	<5y	<10x	100	vet	vet	11	117
	Rosa canina L.	Hagebutten	HSHR	fsb	wh	none	gastr	horse	adult	proph	int (oral)	0.233		od	<1y	2-5x	75	own	own	12	128
		Hagebutten	HSHR	fsb	wh	none	gastr	cattle	adult	proph	int (oral)	0.233		od	<1y	2-5x	62	own	others	12	129
	Rubus fructicosus L.	Katzentee zwei	HSHR	lea	rec	wat (inf)	resp	cat	all	thera	int (oral)			od	<4w	<10x	82	vet	own	64	649
	Rubus idaeus L.	Himbeer-blättertee	HSHR	lea	cu	wat (inf)	infer	dog	adult	proph	int (oral)	8.929		ew	<10y	never	na	book	fam	72	766
Rubiaceae	*Coffea* L.	Coffea Dr. Schaette	HSHR	fsb	bo*	wat	streng	cattle	adult	thera	int (oral)	0.256		od	<1y	<10x	na	adv	adv	60	580
		Coffea Dr. Schaette	HSHR	fsb	bo*	wat	gastr	cattle	adult	thera	int (oral)	0.078		od	never	never	na	fri	fri	16	858
		Coffea Dr. Schaette	HSHR	fsb	bo*	wat	streng	cattle	adult	proph	int (oral)	0.777		od	<1y	<10x	82	adv	adv	43	409
		Coffea Dr. Schaette	HSHR	fsb	bo*	wat	streng	cattle	juvenil	thera	int (oral)	0.118		od	<1y	<10x	na	na	vet	37	374
		Kaffee	HSHR	fsb	bo	milk (rt)	gastr	cattle	juvenil	thera	int (oral)	0.251		od	<5y	<10x	100	fri	fri	31	318
		Kaffee	HSHR	fsb	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	na		na	never	never	na	fri	fri	47	448
		Kaffee	HSHR	fsb	bo	wat (inf)	gastr	cattle	adult	thera	int (oral)	0.159		od	>10y	never	na	fam	fam	8	72
		Kaffee	MHSHR	fsb	bo	wat (inf)	streng	cattle	adult	thera	int (oral)	0.344		od	<5y	once	55	fri	fri	13	154
		Kaffeeschnaps	MHSHR	fsb	bo	wat (inf)	gastr	cattle	adult	thera	int (oral)	3.108		ew	<5y	<10x	100	fam	fam	3	27

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Origin	Extract. on farm	Categories of use	Anim. spec.	Animal age	Type of use	Administration	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	URN
Rutaceae	*Citrus sinensis* L.	Orange	HSHR	fsb	bo	none	streng	cattle	juvenil	thera	int (oral)	0.471		od	<1y	once	99	book	book	11	100
	Citrus x limon (L.) Osbeck	Aetherisches Öl mit Öl	HSHR	shl	bo	wat (rt)	para	cattle	all	thera	exin (epicutan)		na	na	<5y	<10x	96	own	adv	63	619
		Aetherisches Öl mit Öl	HSHR	shl	bo	wat (rt)	para	cattle	adult	proph	exin (epicutan)		na	na	<1y	<10x	100	own	adv	63	618
Salicaceae	*Salix caprea* L.	Palmbuschen	HSHR	twb	wh	none	streng	cattle	all	proph	tohe		na	na	<7d	<10x	na	fam	fam	52	490
Sapindaceae	*Acer campestre* L.	Ahornbaum	HSHR	lea	wh	none	gastr	cattle	adult	thera	int (oral)	na		na	<5y	once	na	own	own	65	668
Solanaceae	*Atropa belladonna* L.	Tollkirsche	HSHR	fsb	wh	none	skin	cattle	all	thera	exal (epicutan)		na	na	>10y	never	na	fri	fri	3	31
	Solanum tuberosum L.	gekochte Kartoffeln	MHSHR	rot	bo	none	streng	cattle	adult	thera	int (oral)	1.957		od	<7d	<10x	100	book	book	36	351
		Kartoffel-umschlag	HSHR	rot	bo	none	skin	cattle	adult	thera	exal (epicutan)		na	na	<10y	never	100	book	book	55	529
		Kartoffelwickel	HSHR	rot	cu	none	resp	cattle	adult	thera	exin (epicutan)		na	na	>10y	never	100	fam	fam	26	266
Theaceae	*Camellia sinensis* (L.) Kuntze	Schwarzer Tee mit Schnaps	MHSHR	lea	bo	wat (inf)	resp	cattle	adult	thera	int (oral)	0.025		od	<5y	<10x	98	fam	fam	48	456
		Schwarztee	HSHR	lea	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.282		od	<4w	<10x	82	fam	fam	13	157
		Schwarztee	HSHR	lea	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	1.255		od	<5y	<10x	13	fam	fam	58	561
		Schwarztee	HSHR	lea	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.424		ew	>10y	never	55	fam	fam	49	459
		Schwarztee	HSHR	lea	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.212		od	>10y	never	66	fam	fam	17	187
		Schwarztee	MHSHR	lea	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	1.226		ew	>10y	never	25	fam	fam	7	64
		Schwarztee	MHSHR	lea	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.624		od	>10y	never	79	cour	fam	47	447

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Ori-gin	Extract. on farm	Cate-gories of use	Anim. spec.	Animal age	Type of use	Admi-nistra-tion	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	UR N
		Schwarztee	MHSHR	lea	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.184		od	>10y	never	59	fam	fam	9	90
		Schwarztee	MHSHR	her	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	0.155		od	<10y	never	15	own	own	6	60
		Schwarztee mit rohem Ei	MHSHR	lea	bo	wat (inf)	gastr	cattle	juvenil	thera	int (oral)	na		na	never	never	na	fri	fri	76	828
Tropaeolaceae	*Tropaeolum majus* L.	Kapuziner-kresseseife	HSHR	flo	cu	wat (rt)	skin	hen	all	thera	exal (epicutan)		na	na	<1y	<10x	99	book	book	64	629
Urticaceae	*Urtica dioica* L.	Brennnessel-heu	HSHR	her	wh	none	gastr	cattle	adult	thera	int (oral)	na		na	<5y	2-5x	na	cour	cour	70	733
		Brennnessel	HSHR	lea	bo	none	gastr	cattle	adult	thera	int (oral)	0.932		rd	<1y	once	83	own	own	65	665
		Brennnessel	HSHR	lea	bo	none	gastr	cattle	adult	thera	int (oral)	0.932		rd	<1y	once	83	own	own	65	666
		Brennnessel	HSHR	lea	wh	none	streng	cattle	adult	proph	int (oral)	0.039		od	<1y	<10x	98	own	own	31	321
		Brennnessel	HSHR	fsb	wh	none	infer	cattle	adult	proph	int (oral)	0.078		ew	<1y	<10x	70	mag	mag	74	800
		Brennnessel	HSHR	wpr	wh	none	behav	pig	juvenil	thera	int (oral)	0.987		od	<1y	<10x	99	vet	vet	33	335
		Brennnessel	HSHR	her	wh	none	streng	hen	juvenil	proph	int (oral)	na		na	<7d	<10x	na	na	na	64	638
		Brennnessel	HSHR	her	wh	none	streng	horse	adult	proph	int (oral)	na		na	<4w	<10x	na	na	na	64	639
		Brennnessel	HSHR	her	wh	none	streng	horse	adult	proph	int (oral)	na		na	<1y	<10x	74	book	book	22	229
		Brennnessel	HSHR	her	wh	none	streng	horse	adult	proph	int (oral)	na		na	<1y	<10x	95	fri	fri	37	369
		Brennnessel	HSHR	her	wh	none	streng	cattle	adult	proph	int (oral)	na		na	<7d	<10x	na	na	na	36	354
		Brennnessel	HSHR	her	wh	none	streng	cattle	adult	proph	int (oral)	na		na	<5y	<10x	59	cour	own	52	483
		Brennnessel	HSHR	her	wh	none	gastr	cattle	adult	proph	int (oral)	0.095		od	<4w	<10x	90	cour	cour	12	134
		Brennnessel	HSHR	her	wh	wat (rt)	streng	pigeon	all	proph	int (oral)	na		od	>10y	never	85	fri	fri	16	181

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Ori-gin	Extract. on farm	Cate-gories of use	Anim. spec.	Animal age	Type of use	Admi-nistra-tion	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	UR N
		Brennnessel	HSHR	her	wh	wat (inf)	musc	cattle	adult	thera	int (oral)	0.808		ew	<5y	once	90	fam	fam	5	51
		Brennnessel mit Ei	MHSHR	her	wh	none	streng	hen	juvenil	proph	int (oral)	na		na	>10y	never	na	fam	fri	77	844
		Brennnessel-brei	MHSHR	her	wh	alcohol (rt)	musc	cattle	adult	thera	exin (epicutan)		na	na	<4w	<10x	56	own	book	57	547
		Brennnessel-heu	HSHR	lea	wh	none	gastr	hen	adult	proph	int (oral)	0.34		rd	<1y	once	na	mag	mag	7	62
		Brennnessel-heu	HSHR	her	wh	none	streng	cattle	all	proph	int (oral)	na		na	<4w	<10x	na	own	fam	77	846
		Brennnessel-heu	HSHR	her	wh	none	streng	cattle	all	proph	int (oral)	na		na	<1y	<10x	94	fam	fam	72	777
		Brennnessel-heu	HSHR	her	wh	none	streng	sheep	all	proph	int (oral)	na		na	<1y	<10x	94	fam	fam	72	778
		Brennnessel-heu	HSHR	her	wh	none	streng	goat	all	proph	int (oral)	na		na	<1y	<10x	94	fam	fam	72	779
		Brennnessel-heu	HSHR	her	wh	none	gastr	cattle	all	thera	int (oral)	na		na	<4w	<10x	na	book	book	57	548
		Brennnessel-heu	HSHR	her	wh	none	gastr	cattle	all	thera	int (oral)	na		na	<1y	<10x	na	own	fam	77	845
		Brennnessel-heu	HSHR	her	wh	none	para	cattle	adult	thera	int (oral)	na		na	never	never	na	fam	fam	55	524
		Brennnessel-heu	HSHR	her	cu	none	streng	cattle	adult	proph	int (oral)	na		na	<1y	<10x	97	own	fam	75	813
		Brennnessel-heu	HSHR	her	cu	none	gastr	cattle	juvenil	thera	int (oral)	na		na	<5y	once	99	own	own	75	814
		harte Eier mit Brennnesseln	MHSHR	lea	wh	none	streng	hen	juvenil	proph	int (oral)	na		na	>10y	never	100	fam	fam	20	219
		Kükenstarter-mischung	MHSHR	her	wh	none	streng	hen	juvenil	proph	int (oral)	na		na	<4w	<10x	na	fri	fri	72	767
Verbenaceae	*Verbena officinalis*L.	Eisenkraut	HSHR	her	bo	wat (dec)	musc	cattle	all	thera	exin (epicutan)			od	<7d	<10x	100	others	others	9	88

Botanical family	Plant species	Recipe name given by DP	Recipe Type	Plant part	Ori-gin	Extract. on farm	Cate-gories of use	Anim. spec.	Animal age	Type of use	Admi-nistra-tion	daily dosage [g/kg$^{0.75}$]	Conc [g/100g]	VER	last use	FR	SA in mm	KW HSHR	KW UR	DP	UR N
Violaceae	*Viola odorata* L.	Veilchensalbe	HSHR	her	rec	oil/fat (rt)	mast	cattle	adult	thera	exin (epicutan)		1.72	od	<1y	<10x	76	book	book	10	96
Vitaceae	*Vitis vinifera* L.	Pansentrinker-mischung	MHSHR	fsb	bo*	wat (et)	gastr	cattle	juvenil	thera	int (oral)	0.418		na	never	never	na	book	book	55	528
		Terrakraft	HSHR	fsb	bo*	none	streng	cattle	juvenil	thera	int (oral)	na		ew	<4w	<10x	na	cour	cour	70	730
		Terrakraft	HSHR	fsb	bo*	none	gastr	cattle	juvenil	thera	int (oral)	na		ew	<4w	<10x	na	cour	cour	70	729
Xanthorrhoe-aceae	*Aloe vera* (L.) Burm.f.	DipMittel Dr. Schaette	MHSHR	lea	bo*	alcohol	mast	cattle	adult	thera	exin (epicutan)		na	na	<7d	<10x	na	adv	adv	40	865
		Lacta-Dipp Dr. Schaette	MHSHR	lea	bo*	alcohol	mast	cattle	adult	proph	exin (epicutan)		na	na	<7d	<10x	na	adv	adv	26	859
Zingiberaceae	*Alpinia officinarum* Hance	Galgant	HSHR	rot	bo	wat (et)	infer	cattle	adult	thera	int (oral)	0.535		od	<1y	2-5x	75	fri	fri	4	34
		Galgant	HSHR	rot	bo	wat (et)	mast	cattle	adult	thera	int (oral)	0.535		od	<5y	2-5x	97	fri	fri	4	35
	Zingiber officinale Roscoe	Ingwerpulver	HSHR	rot	bo	none	musc	horse	adult	thera	int (oral)	na		na	<10y	never	92	others	others	64	646

8. Plant species reported from German-speaking countries

A: only Switzerland (Swi.)

Allium ursinum L.
Aristolochia clematitis L.
Artemisia campestris L.
Athyrium distentifolium Tausch.Ex.Opiz.
Azadirachta indica A.Juss.
Bellis perennis L.
Berberis vulgaris L.
Beta vulgaris L. subsp. vulgaris
Blitum bonus-henricus (L.) Rchb.
Brassica oleraceae L.
Carlina acaulis L.
Castanea sativa Mill.
Ceratonia siliqua L.
Cinnamomum verum J.Presl.
Citrus x aurantium L.
Corylus avellana L.
Cucumis sativus L.
Cucurbita maxima Duchesne
Daphne mezereum L.
Echinacea purpurea (L.) Moench
Eucalyptus globulus Labill.
Fragaria vesca L.
Gentiana purpurea L.
Harpagophytum procumbens DC. ex Meisn.
Hedera helix L.
Leontopodium nivale (Ten.) A.Huet ex Hand.-Mazz.
Majorana hortensis Moench
Matricaria discoidea DC.
Myristica fragrans Houtt.
Nicotiana tabacum L.
Olea europaea L.
Oryza sativa L.
Panax ginseng C.A.Mey.
Pedicularis verticillata L.
Pelargonium sidoides DC.
Phyllitis scolopéndrium (L.) Newman
Plantago media L.
Polygonum aviculare L.
Prunus domestica L.
Pulmonaria officinalis L.
Quassia amara L.
Raphanus sativus subsp niger var. niger J.Kern.
Rhamnus alpina L.
Rhamnus cathartica L.
Salvia verbenacea L.
Senecio ovatus (P.Gaertn., B.Mey. & Scherb.) Willd.
Sorbus aucuparia L.
Stellaria media (L.) Vill.
Syzygium aromaticum (L.) Merr. & L.M.Perry
Theobroma cacao L.
Veratrum album L.
Vicia sativa L.

B: Swi. + Bav.

Aloe vera (L.) Burm.f.
Anthyllis vulneraria L.
Arnica chamissonis Less.
Atropa bella-donna L.
Brassica napus L.
Chelidonium majus L.
Citrus x limon (L.) Osbeck
Crataegus laevigata (Poir.) DC.
Dryopteris filix-mas (L.) Schott
Equisetum arvense L.
Filipendula ulmaria (L.) Maxim.
Ilex aquifolium L.
Laurus nobilis L.
Melaleuca alternifolia (Maiden & Betche) Cheel
Musa x paradisiaca L.
Nigella sativa L.
Origanum vulgare L.
Rubus idaeus L.
Senecio alpinus (L.) Scop.
Silybum marianum (L.) Gaertn.
Symphytum officinale L.
Tanacetum parthenium (L.)
Taraxacum officinale (L.)F.H.Wigg.
Trigonella foenum-graecum L.
Tropaeolum majus L.
Zingiber officinale Roscoe

C: only Bavaria (Bav.)

Lichenes (Bactrospora dryina)
Piptoporus betulinus (Bull.) B.K.Cui, M. L.Han & Y.C.Dai
Acer campestre L.
Allium schoenoprasum L.
Alpinia officinarum Hance
Apium graveolens L.
Artemisia abrotanum L.
Asarum europaeum L.
Boswellia sacra Flück.
Citrus sinensis L.
Cola acuminata (P.Beauv.) Schott & Endl.
Drosera anglica Huds.
Geum urbanum L.
Lilium candidum L.
Mahonia aquifolium (Pursh) Nutt.
Medicago sativa L.
Onobrychis viciifolia Scop.
Ornithogalum caudatum Aiton
Panicum miliaceum L.
Phytolacca americana L.
Pisum sativum L. s. l.
Pinus mugo Turra
Pyrus communis L.
Sanguinaria Canadensis L.
Triticum aestivum spelta L.
Vicia faba L.

D: Swi. + hist. Lit.:

Arctostaphylos uva-ursi (L.) Spreng.
Capsella bursa-pastoris (L.) Medik.
Cucurbita pepo L.
Glechoma hederacea L.
Lycopodium clavatum L.
Malva sylvestris L.
Melissa officinalis L.
Origanum majorana L.
Petroselinum crispum (Mill.) Fuss
Prunus spinosa L.
Sanicula europaea L.
Sinapis alba L.
Solidago virgaurea L.
Tanacetum vulgare L.
Tilia cordata Mill.
Urtica urens L.
Viscum album L.

E: Swi. + hist. Lit. + Bav.

Armoracia rusticana G.Gaertn., B.Mey. & Scherb.
Cinnamomum camphora (L.) J.Presl.
Daucus carota L.
Euphrasia rostkoviana Hayne
Gentiana lutea L.
Juglans regia L.
Lavandula angustifolia Mill.
Plantago lanceolata L.
Potentilla anserina L.
Potentilla erecta (L.) Raeusch.
Quercus robur L.
Ricinus communis L.
Rubus fructicosus L.
Salix spp.
Salvia officinalis L.
Thuja occidentalis L.
Vaccinium myrtillus L.

F: Bav. + hist. Lit.

Alga spp.
Elymus repens L.
Larix decidua Mill.
Levisticum officinale W.D.J.Koch
Mallotus philippinensis (Lam.) Müll.Arg.
Tussilago farfara L.
Verbena officinalis L.
Viola odorata L.

G: only historical literature (hist.Lit.)

Acorus calamus L.
Aesculus hippocastanum L.
Agrimonia eupatoria L.
Angelica archangelica L.
Arctium lappa L.
Brassica rapa L. subvar. *Esculenta*
Carthamus tinctorius L.
Centaurea benedicta L.
Commiphora myrrha (T.Ness) Engl.
Corynanthe johimbe K.Schum.
Erica L.
Eupatorium cannabinum L.
Galium verum L.
Helleborus L.
Inula helenium L.
Krameria lappacea (Dombey) Burdet u B.B. Simpson
Melilotus L.
Menyanthes trifoliata L.
Ononis spinosa L.
Pinus sylvestris L.
Primula veris L.s.str.
Rheum rhabarbarum L.
Rosmarinus officinalis L.
Sempervivum tectorum L.
Urginea (Scilla, Drimia) maritima L.
Valeriana officinalis L.
Verbascum L.
Veronica L.

H: Swi. + hist. Lit. + Aus.
Althaea officinalis L.
Carum carvi L.
Fagopyrum esculentum L.
Juniperus communis L.
Thymus vulgaris L.

I: Swi. + Bav. + hist. Lit. + Aus.
Achillea millefolium L.
Allium cepa L.
Arnica montana L.
Artemisia absinthium L.
Avena sativa L.
Calendula officinalis L.
Camellia sinensis (L.) Kuntze
Cannabis sativa L.
Coffea L.
Foeniculum vulgare (L.) Mill.
Hordeum vulgare L.
Hypericum perforatum L.
Linum usitatissimum L.
Malus domestica Borkh.
Matricaria recutita L.
Mentha spp.
Peucedanum ostruthium (L.) W.D.J. Koch
Picea abies (L.) H.Karst.
Rumex spp.
Sambucus nigra L.
Solanum tuberosum L.
Urtica dioica L.

K: hist. Lit. + Aus.
Pimpinella anisum L.

L: Swi. + Aus.
Alchemilla spp.
Betula pendula Roth
Helianthus annuus L.
Malva neglecta Wallr.

M: Swi. + Bav. + Aus.
Abies alba Mill.
Allium sativum L.
Brassica oleracea convar. capitata var. Spp.
Fraxinus excelsior L.
Geranium robertianum L.
Rosa canina L.
Triticum aestivum L.
Vitis vinifera L.

N: Bav. + Aus.
Secale cereale L.

O: only Austria (Aus.)
Brassica rapa var. Rapa L.
Cetraria islandica (L.) Ach.
Cirsium spinosissimum (L.) Scop.
Papaver somniferum L.
Pimpinella saxifraga L.
Pteridium aquilinum (L.) Kuhn
x Triticosecale Wittm.

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