COMMENT

The Involvement of the Farm Animal Veterinarian in Animal Welfare

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The farm animal practitioner has always played a dual role. The primary role is humanitarian, concerned with the well-being of the livestock, and the secondary role relates to the economics of the enterprise.

With the control of the major endemic diseases (tuberculosis, brucellosis, bacillary white diarrhea and swine fever) in the 1950's, came economic and political pressure for capital-intensive land use to provide an adequate supply of food. This involved the keeping of groups of animals at much higher stocking rates. Cows left the cowshed for the yard and parlor and animals were confined — birds in cages, sows in stalls. These arrangements ensured that individuals could feed and rest relatively free from competition from their fellows. When the group was relatively large, certain automatic equipment was installed to reduce labor costs, and if the animals were dependent on this system for their well-being, the system was described as 'intensive.' The old endemic diseases were being replaced by man-made environmental diseases, and our basic husbandry methods faced a new challenge. The practitioner had to learn a new terminology — response, interaction, dominance — as many of the troubles now encountered had their etiology and control in the behavioral response of the animals to their environment. To the old concepts of cruelty and neglect were added stress, distress, understress, discomfort and pain. The practitioner's deficiencies in knowledge were remedied by the voluminous literature published by ethology specialists, and indeed to a considerable extent by students when they visited us to 'see practice' during their vacations. Conditions like tail biting, bowel edema and cannibalism could be attributed to the new situations in which the animals had been placed. Although the veterinarian had always been able to recognize good and bad husbandry, there now arose situations in which apparently good husbandry could be associated with behavior problems due to the environment; thus the term 'welfare' began to be used in conjunction with the description of husbandry practices. The practitioner is in a unique position to evaluate welfare standards, as he or she knows the capabilities of the stockman, the supply of food and the aims of management. In addition, through periodic visits to the farm, the practitioner can quickly recognize any deterioration in welfare and thus prevent unnecessary suffering. In my experience, disease is by

far the commonest and the most important cause of discomfort, pain and suffering in our livestock.

In 1965 the late Professor Rogers Brambell presented to the government the Report of his Committee of Enquiry into the Welfare of Animals. This Report emphasized the rapid changes that were taking place in animal production at that time, and it did indeed forecast many of the problems we are facing today. As a result of the Report's recommendations, Parliament appointed the Farm Animal Welfare Advisory Committee, which was responsible for the publication of *basic* welfare requirements for food animals. Each Code states in its preface:

> *The basic requirements for the welfare of livestock are the provision of a husbandry system appropriate to the health and behavioral needs of the animals, including the provision of readily accessible fresh water and nutritionally adequate food as required, provision of ventilation and a suitable environmental temperature, adequate freedom of movement and ability to stretch the limbs, with sufficient light for the rapid diagnosis and treatment of injury and disease, emergency provision in the event of a breakdown of essential mechanical equipment, and flooring which neither harms nor causes undue strain, and the avoidance of unnecessary mutilation.*

To achieve the recommendations contained in the preface requires highly skilled stockmanship. Animal welfare depends on the interaction of the stockman, his animals and the environment. This is the key not only to the welfare but also to the productivity of the unit. Although this interaction is the most important factor, in farm practice it is also the most variable. We can advise stockmen, but we have no control over the ability of an individual stockman to implement that advice. Thus we find variation in welfare standards from the excellent to the thoroughly unsatisfactory. The unit with frequent changes in staff and occasional incompatibility among workers can create unsatisfactory conditions which may have a deleterious effect on the well-being of the stock and present the practitioner with a serious ethical welfare problem. The large or extensive unit is not necessarily a welfare hazard in itself; indeed, we frequently find the biggest welfare problems in small units, some of which are associated with the new self-sufficiency 'good life' enthusiasts, or the weekend agriculturalists who are often ignorant of the basic husbandry requirements of their stock, and who frequently have insufficient resources in land, housing and food. Losses from disease and malnutrition can be far greater in these holdings where the owners are not dependent on the unit for their livelihood.

Many practitioners will be familiar with the situation in which an outbreak of disease affects the majority of the animals in a group, and the stockman expects an instant cure out of the car boot. When it is pointed out to him that the prime etiological factor is environmental, he looks at you in disbelief. The response obtained to the advisory correction of the environmental errors is usually proportional to the size of the heap of carcasses on the floor.

If the demands of the Codes preface were met, a large number of the prob-

lems in the field of preventive medicine would disappear, resulting in considerable benefit to our livestock. I will now try and relate the demands of the preface to what we actually see in our evolving husbandry systems.

Appropriate Husbandry Systems

In agriculture, what is regarded as advanced or revolutionary in this decade often becomes conventional in the next. New systems or a change in system should be individually planned and researched. There is a tendency to copy existing systems without due regard to the resources available and to the capabilities of the stockmen. Emphasis seems to be concentrated on the return on capital rather than on the comfort and well-being of the livestock. There appears to be a neglect of fundamental research into alternative systems. Such research should be attached to university veterinary schools, where the multidisciplinary expertise is available.

The last twenty years have been a continuous series of trial and error to improve the environment for the benefit of workers and animals. The loose housing on straw yards was short lived, due to the straw demand and consequential increase in the price of straw. From this the cubicle evolved, in many ways the most tragic thing to hit the dairy cow. The design of a standard cubicle resulted in enlarged hocks and the bruising, sometimes extensive, of stifles, pin bones and thoracic walls. I believe that some of the severe mastitis cases seen in fresh-calved cows are the result of trauma and bruising by the cubicle, which is too small for some of our bigger cows. The lying area of the cubicle went through a grim evolution. Some areas were filled with earth (cheap) but soon this developed into mounds and hollows and proved so uncomfortable as a lying area that many cows rejected the cubicle. Then stone scalpings covered with cheap stone dust were tried. The stones progressively rose to the surface and resulted in a very high incidence of foot problems. In several herds over half the cattle were lame as the result of interdigital injury. Yet even when practitioners were aware of the problem and protested, we saw builders of new housing being advised to use stone. Frequently insufficient attention is paid to the heel stone, so vital to cow comfort and cleanliness. Design and construction faults result in cows rejecting the cubicle and lying in the slurry; 5% rejection is common and we have seen herds where the rejection was as high as 30%. Many of these problems could have been reduced if the practitioner had been consulted at the planning stage. Even today, cattle handling facilities are unsatisfactory on 70% of our farms, and in my opinion this is a major welfare matter. Poor handling facilities cause unnecessary pain and distress through the excessive use of sticks and goads and cause stress on the stockman as well. I am sorry to say that liaison on the farm between the land arm of the Ministry and the practitioner, in my experience, can only be described as poor and often nonexistent. The cowman, as many others, requires motivation which is encouraged by financial reward and job satisfaction. The good cowman should know the behavior of each cow and be able to recognize small deviations. Despite all the mechanization and gadgetry aimed at improving parlor throughput, a 'bionic cowman' has yet to be created. In some of our large dairy units, the anxiety and stress that some of our cowmen experience worries me. Indeed, I think the time has come for a serious reappraisal of this situation.

Adequate Supply of Clean Water

Bovines drink large quantities, and one would think that the provision of an ample supply of clean water in this country is no problem. Yet frequently I see a queue of cows waiting for water at empty tanks due to the bore of the pipe being too small, or the pressure inadequate. In this situation the lower members of the hierarchy go short and can be seen drinking stagnant water around the yard. Water bowls and troughs in cattle yards are often poorly situated, they are frozen in cold weather, heavily polluted with dung, and frequently they get broken by the stock, with the result that the bedding area becomes a sea of slurry. We see a similar result in sow houses. Bored sows are constantly playing with the water nipples, resulting in constant wet beds. These problems are beginning to receive attention, as evidenced by the installation of water straws to eliminate wet beds in swine houses.

Adequate Nutritious Food

Malnutrition continues to be an important welfare problem, particularly in young stock, although the technological improvement in grassland management and conservation has improved the situation. The 'in' method of grazing in the 1960's was paddock grazing, which has now been abandoned and a return made to set stocking. One farmer described wire fence and paddock grazing as 'controlled starvation.' We are now seeing dissatisfaction with self feed silage so much advocated by advisers. Hence there is a move back to trough feeding although it involves more work and more capital. The farmer can see that nutritional adequacy is essential for optimum production. A considerable amount of practitioners' time is spent in controlling and preventing the effects of nutritional change and deficiencies. Barley produces acidosis, laminitis and bloat. Kale produces anemia and bloat. The greater reliance on home grown crops has resulted in an increase in unthriftiness due to deficiencies of copper, selenium, magnesium and phosphorous. Half of our calf problems in the first month of life are nutritional. With the amalgamation of land, multicentered stock units have emerged. We have seen serious nutritional problems during the severe winters of '78 and '79 when it was not a question of the supply of food, but the inability to get to the stock. Here there is a clear need for farmers to arrange a 'self help emergency service.' In the West we saw an excellent example after the wet summer of '74, when the cereal farmers of the East rescued the livestock of the West by massive straw movement into the famine areas. It is obvious that in these situations government contingency measures cannot be relied upon. In the interest of animal welfare, 'self help' planning on a regional basis by the livestock industry will be essential if major catastrophes are to be avoided.

Adequate Ventilation

The increase in the density of housed stock has resulted in many unsatisfactory air space situations. Ventilation is a complicated problem, and we find a tendency by advisory officers to generalize and oversimplify the answers. Dr. Dan Mitchell has emphasized the importance of considering the ventilation

system as part of the complete design from the outset of building or conversion. When cow numbers more than doubled, extra accommodation had to be found to rear the replacements. The empty cowshed became the obvious choice; in my experience this was frequently a recipe for disaster. Respiratory disease is the major cause of discomfort and death in young stock from two to six months old.

Suitable Environmental Temperature

Cattle adapt readily to cold and can thrive at low temperatures. These traits can apply to quite young calves. The stockman tends to regulate the temperature in a building to a level acceptable to himself which often results in condensation with calves housed under a dripping roof. Once the coat is wet it has lost much of its insulation. There is also need for improvement in the provision of shelter for marginal and hill cattle during the winter. Wind seems to be an important cooling factor. This has been shown by the success of the topless cubicle, and yet many have been roofed, as the stockmen did not like to see their cattle with wet backs, and did not like to have wet backs themselves attending to them.

Sufficient Light

The situating of light points to permit satisfactory inspection is extremely important not only for welfare but for the safety at work of the attendants. There are very few units that come up to the recommended lux standards. In most of the purpose-built housing, it is possible to walk through and do a thorough inspection. Much conversion housing and indeed some kennel housing are dark dens where proper inspection or observation is impossible. Every advisory leaflet emphasizes the importance of the early recognition of deviations from normal in the individual animal, yet the whole productivity exercise is aiming at reducing the labor available. Many units in the future will rely on transponders and computers, to the detriment of the animals' well-being. Many units are now left at 6 pm and are not seen again until 7 am. The sight of impacted dystocias, cases of overeating through breaking into food stores, and cows found dead from hypocalcaemia are regrettably familiar before-breakfast scenes for the practitioner. Much lip service is given to animal welfare by politicians, yet one of the most serious losses to the animal unit was the removal of the tied cottage where the stockman was on hand for inspection and in emergencies and not in a village or town often five or ten miles away. To offset losses, some farms pay a motivation bonus on live calves born and reared to ten days.

Proper Flooring

Satisfactory flooring is extremely difficult to achieve. That all is not well is revealed by the fact that we spend about a quarter of our professional time attending to lame cows. Lameness in the bovine is an extremely painful condition. Concrete seems to have an eroding effect on the sole which makes it vulnerable to flint puncture and abscess formation, and also to pressure necrosis with consequential ulceration of the sole. Many cubicle passages and yards become highly polished and perilous to man and beast. There is a considerable loss in cast

animals from injuries that occur due to incoordination in milk fever, mounting during oestrus, or simply hurrying on the insecure surface. Slatted floors are not new; indeed, centuries ago they were used in the form of split saplings covered with bracken to give a dry comfortable secure bed. Concrete slats of good quality and fitted properly work well. Cattle lying on slats appear happier than those standing or lying in a bed of straw slurry. There should, however, be a standard for concrete stall construction to eliminate erosion and slat fracture resulting in foot and leg injuries which have tended to bring slatted floors into disrepute. Brambell focused attention on the problem of the floor in pig housing. Although considerable work has been done in the past fifteen years, an enormous welfare problem remains in the flooring of farrowing houses. The solid floor is wet and dirty and is responsible for many enteric illnesses. On slats, young piglets injure their feet and fracture their legs. Metal slats and punched metal are too slippery and sows frequently fracture their pelvises. Woven wire is good on the feet but seems to cause hock damage in the sows. Expanded metal causes teat injuries and damage to piglet feet. When I advised a client to complain to the manufacturers, their advice was to get a file and remove all the sharp bits! Calves spend 80% of their time lying down; here we should give a positive direction on floor construction by requesting a fall in the floor to ensure a reasonably dry bed. Considerable research and appropriate financing are urgently needed to improve welfare and reduce losses from improper flooring.

Avoidance of Unnecessary Mutilation

Some unnecessary surgical interferences have been prohibited by 'regulation,' such as castration, pinioning and dewinging of poultry, and the docking of cattle. The majority of unnecessary surgical interferences will continue to be done in the foreseeable future for economic, practical and in a few cases, therapeutic purposes. In common with many other farm procedures, the role of the practitioner in this area has changed. In the 1950's we did 90% of this work, in the 1960's we did less than 50% and with the continued increase in size of the enterprises and the economic pressures, we had less than 20% to do in the 1970's. Professor Brambell recognized this trend in 1965 when he stated he was not happy with the situation where stock attendants learned by 'experience.' Today animals are frequently not under the direct day-to-day control of the farmer, or even the senior stockman. In more and more cases, livestock are kept on premises which are geographically many miles away from the home farm and often tended by stockmen without the knowledge of and the expertise in the performance of a number of procedures which the farmer or senior stockman may possess.

There is a need for improvement in the training given to stockmen, which at present varies considerably in quantity and quality in various regions of the country. The profession must give a positive lead in conjunction with the Agricultural Training Board (ATB), and the Association of Agricultural Education Staff (AAES) to improve this situation. Here they will face many obstacles and difficulties such as feasibility, economic constraints, practicalities, and the discussion may get bogged down in controversial areas. The benefits of any difficulty should be given to the animal. One often sees a recommendation that a procedure should

be carried out by a competent person. Many of these procedures are not daily tasks, such as tusk removal in boars or ringing of bulls. On the horizon one sees many objectionable maimings such as amputation of the penis in vasectomized bulls to prevent intromission, amputation of the tongue in calves, and the possible insertion of electronic transponders in cattle. This is an area where we must not abdicate our responsibilities. The role of the practitioner must continue in the future to safeguard the well-being of our livestock by giving advice on care and the prevention of neglect, as well as therapy to the sick and injured.

Welfare is team work. The practitioners will do the forward work, the half back District Veterinary Offices will be at hand in any difficult situation, supported by the talents of Agricultural Development and Advisory Service (ADAS) in the center and the universities on the wings. Very few problems should ever reach the Minister of Agriculture at full back, but if one ever does let us hope he will not put it out of play into touch, but give us an 'up and under' so that we can all bring our expertise together to solve the problem.

Laboratory Animals and Alternatives in the 80's

Andrew N. Rowan

Introduction

In 1969, Sir Peter Medewar, immunologist, Nobel prize-winner and philosopher of science, made the following statement at the Research Defence Society's Annual Meeting:

> *The use of animals in laboratories to enlarge our understanding of nature is part of a far wider exploratory process, and one cannot assay its value in isolation — as if it were an activity which, if prohibited, would deprive us only of the material benefits that grow directly out of its own use. Any such prohibition of learning or confinement of the understanding would have widespread and damaging consequences; but this does not imply that we are forevermore, and in increasing numbers, to enlist animals in the scientific service of man. I think that the use of experimental animals on the present scale is a temporary episode in biological and medical history, and that its peak will be reached in ten years time, or perhaps even sooner. In the meantime, we must grapple with the paradox that nothing but research on animals will provide us with the knowledge that will make it possible for us, one day, to dispense with the use of them altogether (Medewar, 1972).*