

HERB AND SPICE CULTURE

I. C. Hoffman

The present world war has created an acute shortage in the supply of spice and flavoring materials. A large portion of the American supply came from European countries now at war or isolated by their blockades. In many cases the 1940 crops were left unharvested or were destroyed. Parts of Africa, Southern Asia, and the South Sea Islands also produce large quantities of spices but are unable to export much of their supply for lack of shipping facilities. According to the best estimates available, the supply of the United States is adequate for approximately 1 year. After that time, new sources may need to be developed if the war continues.

The Western Hemisphere now produces some mustard seed, chili peppers, oregano, cardamon, ginger, allspice, nutmeg, and mace. Mexico also produces the finest vanilla in the world, and it is believed that the American continents have the soil and climate suitable for raising most of the other spice and flavoring materials now in common use. From what is now known about the quality of domestic spices, it appears that the American-grown product is equal if not superior to much that is now imported. Information, however, is meager, and the spice trade has asked the United States Department of Agriculture and several state experiment stations to test those spices suitable for their respective locations, so that if necessary, adequate supplies could be maintained to care for demands. Those spices and flavorings about which the spice trade is chiefly concerned are caraway, coriander, mustard seeds, and sage leaves. They are attractive to farmers at present because of the high prices received for them and to occupy idle land. Spices and flavoring materials are imported duty free, and the price has been so low that they have previously been less attractive to farmers than the usual crops. Under normal times, caraway seed cost 8 to 10 cents per pound, whereas the 1941 quotation is 40 to 46 cents. Coriander seed formerly brought 4 to 8 cents, now brings 9 to 11 cents per pound. Mustard seed formerly brought 6 to 7 cents, now brings 12 to 13 cents per pound. Dried sage leaves normally brought 5 cents per pound, whereas now they are worth 70 cents to \$1.45 per pound. Although the 1941 prices are very attractive, it should be remembered that there are still considerable quantities of these and other spices in storage in foreign countries, which, if the war should soon end, would suddenly be placed upon the world market with a considerable reduction in the price level. The American farmer should develop the domestic spice industry with care to protect himself against such violent disturbances.

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Caraway*

Caraway (Carum carvei) is a European biennial herb of the parsley family. It grows and fruits well over a considerable portion of the United States, especially in the North and Northwest, but its cultivation in this country seems never to have assumed commercial proportions. The seeds are used medicinally, but are mainly utilized for flavoring cakes, confectionery, and similar products. On distillation with steam, the seeds yield an aromatic oil, which is more used in medicine than the seed itself.

Soil of a somewhat clayey nature and containing a fair proportion of humus and available plant food is particularly suited for caraway, but the plant generally grows well in any good upland soil which will produce fair crops of corn and potatoes. Seeds should be sown in early spring in drills about 16 inches apart, and from 6 to 8 pounds of seed should be used per acre. Frequent shallow cultivation throughout both growing seasons is desirable in order to keep the ground mellow and free from weeds, as a weedy crop at harvest time usually means a product inferior in quality.

As soon as the oldest seeds ripen, which is usually in June of the second year, the crop should be harvested. The plants may be cut with a mower and should be left in the swath until they have lost most of their moisture, when they may be built up into small cocks, or they may be brought in from the field and the curing finished in a barn loft. If on handling in the field the seeds shatter extensively, the crop should be brought in on tight wagons. When drying is finished the seeds are thrashed out, cleaned, and stored in bags of about 100 pounds each.

Returns from experimental areas indicate that a yield of about 1,000 pounds of seed per acre may be expected. One hundred pounds of seed will usually yield 4 to 6 pounds of oil. The average annual importation of caraway seed is about 2,700,000 pounds, and also about 30,000 pounds of oil are imported each year.

Coriander*

Coriander (Coriandrum sativum) is an old world annual of the parsley family. For years the plant has been cultivated in gardens of the United States, and it is now reported as growing wild in many places. The aromatic seeds and the oil distilled from them have long been used medicinally. Both the seed and the oil are also used for flavoring confectionery and cordials and as a condiment in bread and cake.

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Coriander grows well on almost any good soil, but thrives best on deep and fertile garden loam. The soil should be well prepared before planting, which should be done moderately early in the spring. For field cultivation the seed is sown in rows three feet apart, but if the cultivation is done by hand the distance between the rows may be reduced to 18 inches. The seed should be sown thickly in order to insure a good stand. When well up, the plants are thinned to stand 4 or 5 inches apart in the row. Cultivation should continue until the plants flower, which will be about two months from the time of planting.

When most of the seeds are ripe the plants are cut with a scythe or a mower, preferably early in the morning while moist with dew, in order to avoid shattering the seed. The plants are partially cured in small cocks in the field, the drying being finished in a barn loft or under other suitable shelter after which the seeds are threshed out and cleaned.

The yield of seed is quite variable, but returns from experimental areas indicate that from 500 to 800 pounds per acre may be expected. Five hundred pounds of seed will usually yield from 1 to 5 pounds of oil, according to the localities where grown. The annual importation of coriander seed is about 1,500,000 pounds.

Mustard

Mustard seed is being raised in the United States on a commercial basis in two sections. The Lompac valley in the northern part of Santa Barbara County, California, produces about 6,000,000 pounds of mustard seed annually and the Triangle area in north central Montana produces approximately the same amount. The total consumption of mustard seed in the United States is estimated at 24,000,000 pounds annually. About half of it was imported from Rumania, Holland, the United Kingdom, China, and Italy.

Mustard is easily raised and can be grown successfully in a wide range of soils and climate. For this reason, its production may easily be overdone. Some authorities believe that the crop should be raised only under contract, so that the acreage could be controlled and the seed would bring a more constant price. Mustard has produced the heaviest yields on the heavier types of soils, but it will do well on any soil that will produce good wheat. Mustard plants cannot compete successfully with many common weeds; so the crop should be planted on clean ground.

The land should be plowed quite early in the spring and finely pulverized as for oats or other small-seeded crops. The seeding is usually done with an alfalfa or grass seed attachment on the regular grain drill. The drill should be set to cover the seed not more than one-half inch deep, and about 5 to 6 pounds of

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seed per acre are sown. The time of seeding varies somewhat with the locality, but late April or early May should be satisfactory for most northern sections. The variety of mustard that should be raised is specified by the contracting companies, but the yellow (English) varieties are in greatest demand at present.

The height of mustard plants varies greatly with soil and climatic conditions, but usually the plants mature at 2 or 3 feet. The crop matures about the first of August. The brown varieties should be cut with a binder when the plants are still slightly green, as they shatter badly when ripe. The bundles are then placed in shocks and allowed to dry before threshing. The best type of threshing machine has a rubber-covered cylinder and most of the concave teeth removed. The yellow varieties may be allowed to stand in the field until ripe and then harvested with a combine with most of the concave teeth removed. Yields vary widely, but should be estimated at 700 to 1,000 pounds per acre on good land in favorable seasons. Under some conditions the yields have been 1,200 to 1,500 pounds per acre.

Sage*

The common sage plant (*Salvia officinalis*) is a hardy perennial of the mint family, widely cultivated in gardens, and when once established it persists for several years. The leaves are used extensively for seasoning meats and soups, and a tea made from them is an old household remedy.

Sage is easily cultivated and will grow in any well-drained fertile soil, but seems to thrive best in a rich clay loam. For cultivation on a large scale the seeds are sown in early spring in rows 2 to 3 feet apart, and when plants are well up they are thinned to stand 12 inches apart in the row. The plants removed in thinning should be transplanted to other rows at the same distances which will materially save time and seed. The plants may also be propagated by means of cuttings and layerings. The broad-leaved varieties which do not flower and set seed easily are the most desirable since they produce the most leaves. Cuttings set in the field in the spring as soon as weather conditions permit frequently yield a large crop the first year. Those plants coming from seed rarely yield large crops the first season, but may be picked 2 or 3 times each season for 5 or 6 years following. If a product of fine quality is desired, the leaves are picked by hand and dried in the shade. Sage leaves are apt to turn black while drying unless the removal of moisture proceeds continually until they are fully dry. A cheap grade may be obtained at a smaller cost by cutting the plants with a mower, the cutter bar of which is set at such a height as not to include the woody stems. The dry herb should be marketed promptly since it loses its strength rapidly with age. Returns from experimental areas indicate that on good soil a yield of 2,000 pounds or more of dried tops per acre may be expected. In case the leaves only are harvested, the yield will be proportionately less. In 1939 nearly 2,000,000 pounds of dry sage leaf were imported into this country.

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