August, 1917 Extension Bulletin Series 1, No. 120

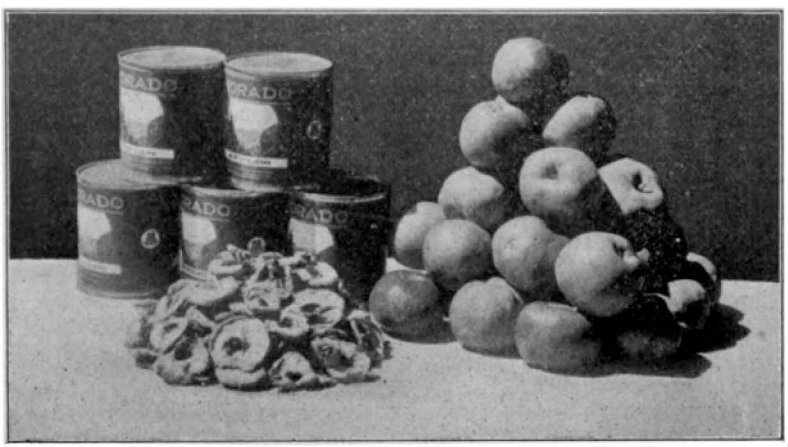
Colorado Agricultural College
EXTENSION SERVICE
Fort Collins, Colorado

H. T. FRENCH, Director

THE PRESERVATION OF FRUITS AND VEGETABLES BY DRYING

(MARKET SERIES NO. 1)

BY H. W. ALLINGER
COLORADO OFFICE OF MARKETS
DENVER, COLORADO



Equivalent values—fresh, canned, dried.

Any person, firm or community interested in the erection of an evaporator, should write the Colorado Office of Markets, stating the situation regarding the available supply of fruits and vegetables. The specialist of the office will be glad to be of all possible assistance in this matter. Although it is probably too late this year to do much in a commercial way, it is none to early to get things lined up for 1918.

CO-OPERATIVE EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS—
COLORADO AGRICULTURAL COLLEGE AND U. S. DEPARTMENT OF
AGRICULTURE CO-OPERATING

Colorado Agricultural College

FORT COLLINS, COLORADO

THE STATE BOARD OF AGRICULTURE

		Term Expires
HON. CHAS. PEARSON	Durango,	1919
HON. R. W. CORWIN	Pueblo,	1919
HON. A. A. EDWARDS	Fort Collins,	1921
MRS. J. B. BELFORD	Denver,	1921
HON. H. D. PARKER	Greeley,	1923
MRS. AGNES L. RIDDLE	Denver,	1923
HON. J. C. BELL	Montrose,	1925
HON. E. M. AMMONS	Denver,	1925

PRESIDENT CHAS. A. LORY,
GOVERNOR JULIUS C. GUNTER, } Ex-Officio

L. M. TAYLOR, Secretary — CHAS. H. SHELDON, Treasurer

EXECUTIVE COMMITTEE

A. A. EDWARDS, Chairman

E. M. AMMONS — H. D. PARKER

EXTENSION SERVICE

OFFICERS

CHAS. A. LORY.....President
H. T. FRENCH.....Director
A. E. LOVETT....State Leader County Agricultural Agents
VICTORIA REPENSKY.....Executive Clerk

EXTENSION STAFF

C. G. SARGENT.....Rural and Industrial Education
W. E. VAPLON.....State Leader Boys' and Girls' Clubs
W. E. FOARD.....Farm Management Demonstrations
MIRIAM M. HAYNES.....Home Economics
MAUDE E. SHERIDAN.....Assistant Leader Boys' and Girls' Clubs
R. W. CLARK.....Animal Husbandry
W. H. KERR.....Markets and Marketing
RALPH L. CROSMAN.....Editor of Publications
O. S. RAYNER, Assistant State Leader County Agricultural Agents and in Charge of Extension Schools
E. L. BADER.....Agronomy

COLLEGE FACULTY CO-OPERATING

COUNTY AGRICULTURAL AGENTS

GEO. C. BURCKHALTER.....Sterling, Logan County
PAUL N. FLINT.....Stratton, Kit Carson County
W. H. LAUCK.....Colorado Springs, El Paso County
C. G. McCORD.....Fort Morgan, Morgan County
S. V. SMITH.....Pueblo, Pueblo County
H. H. SIMPSON.....Longmont, Boulder County
E. D. SMITH.....Hesperus, La Plata and Montezuma Counties
GEO. R. SMITH.....Brighton, Adams County
RODNEY C. ALLRED.....Glenwood Springs, Garfield County
RALPH R. JEFFRIES.....Canon City, Fremont County
E. H. THOMAS.....Monte Vista, Rio Grande County
CHAS E. SMITH.....Trinidad, Las Animas County
MASON E. KNAPP.....Greeley, Weld County
VICTOR R. TUCKER.....Castle Rock, Douglas County
WALDO KIDDER.....Walsenburg, Huerfano County
OLIVER J. GRACE.....Akron, Washington County
E. H. DIVELBISS.....Delta, Delta County

THE PRESERVATION OF FRUITS AND VEGETABLES BY DRYING

BY H. W. ALLINGER

A vital concern is the conservation of America's food supply in this world crisis has forcibly turned attention to the methods employed in preserving perishable food products.

Storage, both common and cold, lengthens the time materially during which these products can be kept in an edible state. Many farmers have some kind of cellar or storage room or pits in the field for this purpose. Cold storage plants are important factors in our food economy, but they must be large to be profitable and are for this reason beyond the resources of practically all farmers. Most city dwellers have no place to store perishables and must either buy them in season, or out of cold storage, or else in some form of a preserved state.

Canning is a means widely employed to save fruits and vegetables and find a wider market for them. The quality and cleanliness of canned goods on the market has greatly improved in the last decade so that the prejudices of many people have been overcome and the use of these goods has been greatly extended. Housewives on the farm, and of late an increasing number in the cities, are employing this method of stocking up their pantries while the various perishable products are in season.

Evaporated fruits are found in all our markets. Such fruits as apples, peaches, prunes, figs, and raisins have been dried in this country for a long time and form a staple product in the markets. But vegetable drying is comparatively new to most people. In this country pioneers of fifty and a hundred years or more ago successfully dried many of the products of the orchard and home garden, and in European countries surplus perishable products are dried in municipal plants and smaller evaporators scattered throughout the fruit and truck districts.

Until recent years there were comparatively few vegetable driers in this country. The products put out by the early driers were used mainly in Alaska and distant mountain communities. A little of them may have gone into the export trade. But during the last few years plants have gone up in New York, Maryland, New Jersey, and in other eastern states, and in the West, especially in Oregon and Utah. That these plants have been successful and have found a rapidly widening market is shown by the large additions made the past two years and the number of new plants being constructed or projected at this time.

ADVANTAGES OF DRYING

Vegetables contain 80 to 90 percent water, and all but about 12 percent of this is removed in drying. Fruit, having a large percentage of sugar, loses less weight in drying than vegetables. This means that dried products need much less storage room than the fresh products and shipping charges are considerably less. A smaller number of containers is necessary than in canning. Further, many fruits and vegetables that are not suitable for canning can be preserved by drying. Canned goods must be protected from freezing, while low temperatures scarcely effect dried products. The home oven or the top of the stove will do to dry a small amount or remnants from the kitchen, quantities too small to can, thereby preventing waste.

MARKETS FOR DRIED PRODUCTS

The market demand for staple dried fruits has increased materially during the past few years, due in a great measure to the foreign need occasioned by the war. In the wake of this follows the demand for dried vegetables. The allied governments and the United States Army and Navy are in the market for thousands of tons of dried fruits and vegetables. These products being condensed, a much larger quantity in relative food value can be handled and transported than if they were fresh or canned. The demand at home is increasing also. Many of the dried vegetables put up by the latest and best equipped evaporators, when cooked, are scarcely distinguishable from the fresh cooked article.

COMMERCIAL EVAPORATORS

At the present time Colorado has only a few fruit and vegetable evaporator plants operating on a commercial scale. Several driers were built ten or fifteen years ago, but owing either to the lack of sufficient raw material, or the failure to keep operating expenses down, or the non-support of the growers, these plants had to discontinue. During the past few years conditions have changed and a well placed plant need not lack a sufficient quantity of fresh fruit and vegetables for its operation. The demand for dried products has greatly increased, and the prices have advanced, so that it is reasonable to believe that a plant, efficiently managed, need not fear of coming out on the wrong side of the ledger.

In the eastern states, particularly in New York, there are evaporators, principally for apples. These buildings are usually of the kiln type, each unit being about 20 feet square, two stories high, with the heating apparatus on the lower floor, the heated air passing up into the second story through a narrow slatted floor, upon which the pre-

pared apples are spread to dry. This unit has about 100 bushels capacity per day. To this drying unit must be added additional room for preparing, bleaching, slicing and storing the fruit. This type is adapted to apples principally, since the fruit must be turned over to insure even drying. Unpeeled peaches have also been dried with moderate success. Since 1914 some of these plants have been used to dry cabbage and carrots for the European armies.

In the west there is another type, heretofore used mainly for prunes. This is called the tunnel drier, the drying unit dimensions usually being about 3 feet in width, 6 feet in heighth and about 20 feet in length, with a door at each end. As many of these units are built side by side as are necessary to give the required capacity. These tunnels are inclined, one end being raised 18 to 30 inches higher than the other. Each tunnel has runways, about 4½ inches apart, fastened to the sides and extending from end to end, upon which the trays holding the fruit are placed. The heating plant is underneath the lower end of the tunnels and the heated air passes into the tunnels through a 3-foot opening in the floor, circulating over the fruit through the tunnels and escaping at the upper end through a ventilator. One advantage of this type is that not only prunes but apples and all fruits and vegetables can be dried, since everything is placed on trays. Another advantage is that the temperature at the upper end, where the fresh product is introduced is lower than at the lower end where the heat comes in and the dried fruit is removed, the difference being as much as 25 to 30 degrees. This is of importance, for practically all fruits and vegetables retain their flavor better if the drying temperature is started at a low degree and gradually raised until the end of the drying period. Prunes and berries, if the heat during the initial drying period is too high, are apt to "bleed" or drip and run together, and other fruits are apt to scorch and seer over, thereby preventing the easy escape of the moisture within.

The stack drier, which has the trays placed one above the other, with the heated air passing through them perpendicularly, has many advantages similar to the tunnel type, the main advantage being that the temperature is highest at the lower end where the driest fruit is, and the lowest at the upper end where the fresh fruit is put in.

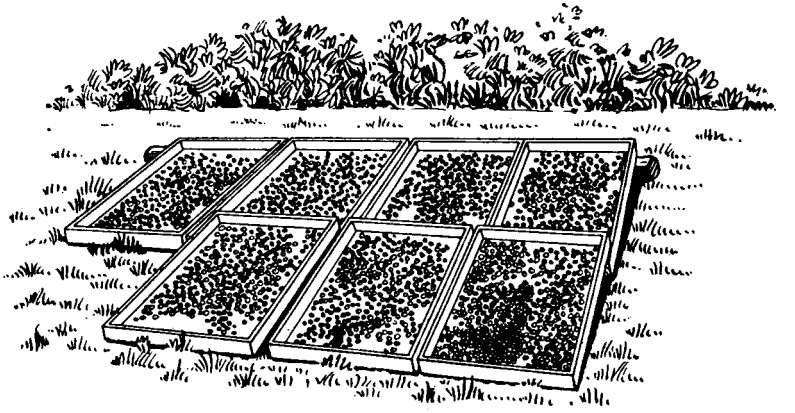
These types have been described somewhat in detail because many of the newer driers are based on modifications of these types. Patented improvements in the kiln types to adapt them to fruit and vegetable drying have been made. However, the greater number of the recent all-purpose driers are based on improvements of the other types. The change is principally in the direction of making more effective a forced air circulation.

Dr. H. C. Gore, chemist in charge of the fruit and vegetable utilization laboratory, United States Department of Agriculture, at Washington, has recently worked out a method of dehydrating fruits and vegetables, depending not so much on high heat as on strong circulation of air, which is secured by means of large rotary fans and a special arrangement of the trays.

SUN DRYING

Sun drying can be practiced in a number of localities in this State. Near Montrose, at an elevation of over 5,800 feet, prunes, peaches and apricots have been successfully sun-dried for many years. Other places have tried this method in a small way and found it feasible.

The apparatus for sun-drying is easily made. Trays for this purpose are made quite large, the California commercial size being 8x3 feet. But any size will serve the purpose, providing they are uniform. The sides and ends are made of 1x2 inch strips, to which lath or pine strips are nailed to form the bottom. The trays can be stacked up and coverel over in case of rain, or for the final curing of some fruits. When stacked up it is best to insert 1-inch strips between the trays to allow sufficient circulation of air. Usually one end of the tray is raised off the ground to allow free passage of the air underneath.



Trays for sun-drying fruits and vegetables

Since apples, peaches, pears, and apricots tend to darken considerably in the sun, they are usually treated to the fumes of sulphur to prevent this discoloration. For this purpose, a box of light lumber, made air tight with building paper, is constructed, a few inches wider and longer than the trays, open at the bottom, high enough to cover

over 12 or 15 trays, stacked up. Near the bottom, at each end, boards should extend out to serve as handles.

SULPHURING

A hole is made underneath the trays, into which the sulphur is put on a dish or an earthen vessel. The box is placed over the trays and the sulphur lighted with a match and paper, or by dropping on red hot coals, or making a wick of waste, soaked in kerosene. Sulphuring adds nothing to the quality of the dried fruit, but it improves the appearance, makes the product more attractive and increases the marketability. The drying period is shortened somewhat, and insects will not attack the fruit so readily.

Apricots and peaches should be sulphured 2 to 3 hours, apples 20 to 30 minutes and pears 15 hours and even longer. With apricots and peaches the juice is drawn into the cups of the fruit and care must be taken in handling the trays not to spill the juice as the fruit will stick to the trays if this happens.

Where fruit is dried in considerable quantities sulphur houses are usually built into which the trays, loaded on trucks, are pushed, the doors closed and the sulphur lighted.

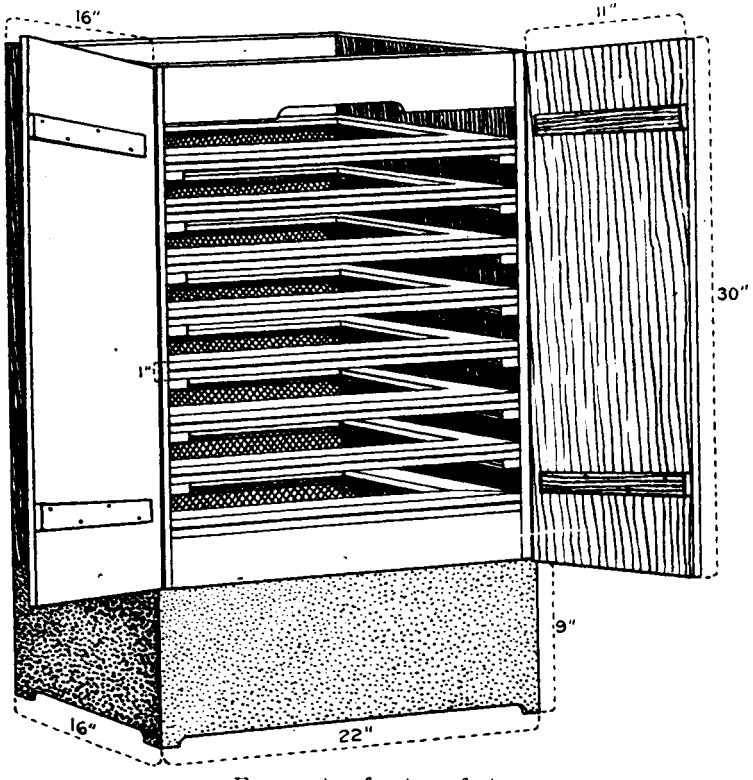
In evaporators the sulphuring is done with power bleachers. These are long boxes with slatted conveyors upon which the fruit is placed, where it is subjected to the fumes while passing through the bleacher.

HOME DRYING

The value of drying fruits and vegetables in season is perhaps more apparent to the city dweller, who usually has no storage facilities. Yet there are many fruits and vegetables which cannot be stored for later use and it is here where drying can play an important role for the rural as well as the urban dweller.

Home drying can be done in the sun, in the oven, in small driers for the top of the stove, or in portable evaporators of a larger capacity. On Page 8 you may find an illustration of an easily made drier for the top of the stove. The base is 22x16 inches and 9 inches high and is made of galvanized sheeting. About 5 inches up on each end two holes are made through which wires are drawn. Upon this is placed a sheet punched full of ¼-inch holes. This sheet acts as a radiator and prevents the heat from the stove from coming in direct contact with the drying product. On this base is placed the box-like drier, 22x16 inches and 30 inches high, open at the top and bottom to permit free circulation of the air through the drier. Small strips are nailed on the sides 3½ inches apart for tray rests. The tray frames are made of ¾x1½

inch pieces to which 1/5- or ¼-inch galvanized wire netting is nailed. Laths fastened underneath the netting to the frames will make the trays stronger.



Evaporator for top of stove.

There are a number of home driers manufactured and put on the market at a cost of $6.00 or $7.00. The capacity of these is about the same as the one described above.

If a drier of a somewhat larger capacity is desired, it will not be difficult to increase the dimensions of the one given above, and instead of using the top of the stove, a small furnace can be improvised and enclosed in the lower part of the drier to furnish the necessary heat.

With all evaporators it is advisable to use a thermometer registering up to 200 or 212 degrees. If the temperature is too low some of the products may become moldy or spoil, if too high scorching will take place. In both cases the product is spoiled.

SWEATING

All fruits and vegetables upon being taken out of the drier should be piled in heaps to allow sweating or conditioning to go on. In this

process the moisture content becomes uniform throughout the pile. Stirring the dried material every day or two for a week or more will aid in this work. Vegetables are dried until they are brittle and care must be taken with the leafy varieties not to break them up in too small pieces while turning them.

STORING DRIED PRODUCTS

The storage bin or room should be dark and protected so that moths cannot get in and lay their eggs on the stored goods.

In home drying, boxes, cans and paper bags can be used to store dried products. During the first week the contents should be stirred or poured daily from one receptacle to another. Care must be taken here also to exclude light and insects.

FRUIT DRYING

The drying temperatures for fruits range approximately from 130 to 175 degrees. As has been pointed out, it is best to start with the lower temperature and gradually increase as the drying proceeds. This difference in temperatures is found in the two ends of the tunnel in tunnel evaporators and the top and bottom trays in stack driers. There the question is solved naturally. In driers for the top of the stove the fresh fruit should always be put in at the top and worked down as the lower trays become dry.

Apples

Most of the good cooking varieties of apples except early summer apples, can be dried to advantage. The Spitzenberg, Baldwin and Ben Davis make a good white product while the other varieties yield a slightly colored dried stock.

The apples are peeled and cored, usually by machine, and gone over by hand and all pieces of skin, parts of core and decay removed. They are then sulphured 20 to 30 minutes and either quartered or sliced ⅛ to ¼ inch thick. In the kiln driers the prepared apples are spread 4 to 6 inches deep on the floor, and frequently stirred after the first 4 or 5 hours. In the tunnel driers the fruit is placed 1½ inches deep on the trays, but no stirring is necessary. In the home, sulphuring is usually omitted. Often the sliced fruit is dipped in a brine solution to prevent deep discoloration. In sun-drying it is advisable to stir the fruit. No definite drying time can be given, that depending on temperature, air circulation, etc. The apples are dry when a number of pieces squeezed together will separate at once. In this condition no moisture can be squeezed from a freshly cut end. The pieces are leathery and velvety, but should not be brittle or break when rolled.

About 8 pounds of fresh apples will make one pound dried. The moisture content should be about 24%. Low grade apples are usually used, but culls make a poor product in apples as they do in any other kind of dried fruit. Apples smaller than 2¼ inches are not profitable to dry and are best used for cider or vinegar.

Peaches

For drying, only prime ripe fruit should be used, neither the green nor the soft fruit making even a second-grade article. The fruit is halved and carefully pitted, the skin usually not being removed, the pieces placed in a single layer on trays, cup side up, sulphured 2 to 3 hours, and dried in the sun, in tunnel or stack driers, or on the stove. As with apples, sulphuring in the home is frequently omitted, the product being of just as good quality, only darker in appearance. In sun-drying the thin pieces are picked out, as they would otherwise over-dry. When dry, the pieces will be elastic, but not brittle or soggy, and will come back to the original shape when squeezed together. Pile in heaps and allow to sweat, turning the product over daily for some time. Peaches like the Muir variety will yield 1 pound dried to 4 or 5 fresh. Elbertas will dry down more as they contain more water, usually 6 or 7 pounds making 1 pound dried. The free-stones are easiest to handle, but the clings make the best grade product. A special pitting spoon, however, is needed for the latter.

Apricots

Some California growers, in gathering apricots, shake them off the tree on a sheet; this is not recommended, it being much better to pick them. The fruit, which must not be soft, is halved, pitted, placed on trays, cup side up, sulphured until it becomes a light color and dried like peaches. In sun drying to prevent over-drying the trays are frequently stacked up after two days and the fruit allowed to finish in the stack.

The bulk of our dried apricots and peaches come from California where they are dried cheaply in the sun, the selling price being practically determined throughout the country by the selling agencies of that state. For peaches the prices have not been high in the past, but promise to be better in the future because of the increasing demand at home and abroad.

Prunes

Prunes are allowed to drop off the tree before gathering. They are dipped momentarily in a boiling lye solution, using about two pounds of lye to 50 or 60 gallons of water. They are then plunged into

a cold water bath and afterwards spread on trays. The lye punctures the skin, preventing dripping of the fruit after it is placed in the heated evaporator. In sun drying, the small fruit dries first and must be picked out. Prunes are sufficiently dry when they are leatherly, but not brittle or dry enough to rattle. The yield of Italian prunes is about 650 pounds dried per ton of fresh fruit. The drying period in the tunnel evaporator ranges from 30 to 48 hours.

In home drying, prunes, and plums also, are often halved and pitted and dried like apricots. This shortens the drying time very materially.

Pears

Pears, to make a good dried product, must be ripe, but not overripe or soft. They are usually not peeled, but if they are, a much better product can be made. The fruit is halved, or sometimes quartered, the stem and blossom end trimmed out, but the core is commonly left in. Sulphuring must take place at once or the fruit will discolor. For sun drying this requires from 12 to 18 hours. Pears can be set in the sun for a day or two and then stacked up in the shade to finish. Slats 1 or 1½ inches thick should be put between the trays to permit sufficient air circulation. If so desired pears can be dried entirely in the sun, but the product will be not so fancy as with the other method. For drying in evaporators, the pears are sulphured less than for sun drying, about 4 or 5 hours being the usual time. They will dry in about the same time as prunes, 30 hours or more. The fruit is sufficiently dry when it is rubbery, but not hard or brittle. The yield is about 6 to 1. Dried pears make a fine article and the demand is steadily increasing, especially in foreign countries.

Cherries

The cherries are stemmed and usually pitted, although the unpitted product is quite satisfactory, especially the small black varieties. They may be readily dried on trays in the sun or in an evaporator. They dry in 3 or 4 hours in the drier. Avoid over-drying cherries, especially the pitted product, which should not become hard, but be rather elastic. It is well not to begin with too high a heat at the outset, starting with about 115 degrees and raising the temperature gradually. The market for dried cherries is growing slowly but steadily.

Berries

Blackberries and raspberries are spread thinly on trays, and must not be stirred. In the drier the temperature at the beginning should be low, about 110 degrees, and slowly raised to 150 degrees, otherwise the

berries will drip, run together and stick badly to the trays. Also care must be taken not to over-dry, as there will be little left of the raspberries, and blackberries will not resume their normal shape in cooking. Color and the flavor will also be lost. In sun drying it is a common practice to stack the trays during the warmer parts of the day after the initial drying period to prevent sticking. The berries are dry when they will no longer stain when pressed. About 4½ to 5 pounds fresh make 1 pound dried.

VEGETABLE DRYING

More care must be taken in securing the proper drying temperature for vegetables than for fruits, as they scorch more easily. A gradual rise from 110 degrees to 150 or 160 degrees is the most desirable temperature. Beets, potatoes and corn can be dried at higher temperatures, especially corn on the cob, when 175 degrees is often maintained. It is practically necessary, as has been pointed out, to have a thermometer and use it in the drier. Otherwise satisfactory work cannot be done.

Vegetables are dried until they are rather crisp. However, drying until the product is very brittle must be avoided, as much of the flavor and color is lost thereby.

The drying time given with the various varieties is only an approximation. It varies with the temperature maintained, the rate of air circulation, the size of the pieces, the humidity of the air, etc. The degree of dryness should govern rather than any specific time.

BLANCHING

Many persons, experienced in vegetable drying, believe that it is advantageous after cleaning and preparing the vegetables, to blanch them, that is, to dip them in boiling water, or put them in steam, for 4 to 9 minutes. This coagulates the albumen and prevents later discoloration and loss of flavor. The fiber is softened, making drying easier and more rapid. Surface acids and strong odors are removed. The method is to place the prepared vegetables in wire baskets and put in a hot water bath or live steam. Using steam will change the color and flavor less than water. In commercial plants the trays containing the prepared product are placed on trucks which are run into chambers where live steam is turned on for 5 or 10 minutes. This avoids the handling of the vegetables after blanching. In the home the blanched product is spread out and allowed to surface-dry before being put in the evaporator.

In sun drying the trays are often stacked up during the latter part of the drying period and the vegetables allowed to cure in the shade.

String Beans

Wash, snip and string, breaking larger beans into one inch lengths. Blanch 5 to 8 minutes, according to tenderness. If a tablespoonful of soda is added to every 4 gallons of water, it will aid in setting the color. Spread the beans a little less than an inch deep on trays and dry in the sun, or on the stove or evaporator. It will take tender beans about 5 hours to dry, older ones 6 hours. In the sun it will take several days. Here frequent stirring will aid the drying process. About 8 pounds green will make 1 pound dried. After drying, place in a heap, or box or some other container and allow to sweat, stirring the product every day for a week or more.

Corn

Corn is blanched on the cob for 6 or 7 minutes in water to which a little salt has been added. Blanching sets the milk. Cut off the kernels and spread them about ½ inch deep on trays to dry. About 5 or 6 hours will be required in a drier. Corn can be dried on the cob, using a higher temperature than for cut corn. Corn can also be sun-dried, and if desired can be finished in an evaporator. This will destroy any insect eggs that may have been deposited. In fact this is a good way for all sun-dried products to be treated, especially if moths and insects have found access to the trays during the drying period.

Green Peas

For commercial purposes the shelled peas are graded according to size. For the home this is not necessary. Blanch 5 to 6 minutes in water or steam, and spread in a one-half-inch layer to dry, keeping the temperature preferably between 120 and 130 degrees. They will dry in about 4½ hours in the drier. In the sun one or two warm days will suffice.

Beets and Turnips

Beets are washed, trimmed and boiled 30 minutes or until the skin slips. If trimmed too close before boiling the color will fade. Peel and slice ⅛ to ¼ inch thick, spread thin on trays and dry about 5½ hours.

Turnips are pared, sliced, blanched about 3 minutes, or until transparent, and dried similar to beets.

Carrots and Parsnips

Remove the skin by paring, or boiling 10 minutes and slipping.

Quarter the carrots or slice in strips ¼ inch thick. Blanch 5 minutes. Spread thinly in trays and dry 4 to 5½ hours.

Handle parsnips in a similar manner.

Onions

After peeling off the outside dry leaves, slice ⅛ to ¼ inch thick, blanch 5 to 7 minutes and spread on trays. About 5 hours will be required for drying. After the onions have passed through the sweat they must be stored in dark bins or in receptacles where no light can get to them.

Cabbage

Remove outside leaves, slice thin, blanch 6 to 7 minutes and dry about 4½ hours.

Spinach

Wash spinach thoroughly to remove all dirt and grit, surface dry, spread evenly on trays and dry about 4 hours.

Rhubarb

Cut off all the leaf and lower end of stalk. Peel and cut in ¾-inch pieces. Dry in the sun or evaporator.

Tomatoes

Scald and slip skins. Slice in ½-inch pieces, spread on trays and dry with moderate heat.

Pumpkin and Squash

Wash, cut, peel, remove the seeds and soft parts and cut in ½-inch chunks or in thin strips. Blanch 5 minutes and dry until quite brittle.

Potatoes

Potatoes, after they have been peeled can be cooked, sliced thin, spread on trays and dried. Or, they can be sliced raw, blanched a few minutes and dried until they are crisp.

GRADING AND PACKING

For the home no grading or putting up in containers of certain specifications is necessary. But for the market it is just as necessary to grade the dried products and pack them properly as it is for the fresh fruits or vegetables. Peaches, apricots and other fruits are graded according to size, color and appearance. Four grades have been established for these fruits—standard, choice, fancy and extra fancy. Standard peaches are 1 inch in diameter, choice 1½ inches, fancy 2 inches and extra fancy 2½ inches. Apricots, ½, ¾ to 1 inch, 1¼ to 1¾ and 2 inches or over for the various grades respectively. Choice ring apples must be 1½ inches in diameter and fancy 2 inches. Prunes are graded according to the number per pound, 20/30, 30/40, 40/50, etc. The container is an important item for the packer to consider. Wood

of a non-odorous kind must be used. The usual sizes hold 10, 25, and 50 pounds net. Fiber is also used for containers, in fact many of the coast packers put up all varieties in five-pound fibre containers, 5 or 10 to the case. Smaller packages, 5-, 2- or 1-pound or less are usually of paper cardboard. In packing, the box is lined with paper and the fruit put in layers on the bottom, which becomes the top when opened, and the rest of the fruit is put in bulk and pressed down.

Vegetables are also packed in 25- and 50-pound containers but the more usual way to pack them is in 5-, 2- and 1-pound cartons, or of even smaller size.

SUMMARY

Perishable foods are saved for use over an extended period either by storage, canning or evaporation.

Evaporated products, in comparison, are less bulky, bear no transportation charges for surplus water, are not easily affected by temperature and can be put in containers not suitable for fresh or canned products.

The demand for dried fruits and vegetables is increasing and prices are being obtained which make the drying of fruits and vegetables in most cases profitable.

There are very few commercial evaporators in Colorado. More should be put up to take care of the surplus products that cannot be saved in any other way.

Sun-drying is feasible in many parts of the State and the necessary equipment is not expensive.

Home drying can be, and should be, practiced. Equipment and containers cost but little and can be easily made or obtained for practically all homes.

The art of drying is not difficult to learn, once the underlying principles are understood.

Drying should be started at a relatively low temperature and gradually increased toward the end of the period. For fruits this commonly ranges from 125 to 175 degrees, for vegetables from 110 to 160 degrees.

In general, fruits are dried until they are in a leathery or elastic condition. They should never be soggy on the one hand or hard and brittle on the other. Vegetables are usually dried until they are crisp.

Provision must be made for the sweating process, frequent stirring of the dried products for a week or two being necessary.

Storage should be in a dark, dry room, screened or protected from moths and other insects. The same care must be observed if boxes, cans or other containers are used in the home.

Prepare to save all your surplus fruits and vegetables; the world needs them.

If you wish further information write to the Colorado Office of Markets, 26 Custom House Building, Denver, Colorado.