to thank both of these agencies for their help and cooperation in this respect. In addition to the above, we have had no complaints of odor from this plant in the last year.

SWEET POTATO CANNING IN FLORIDA

ROBERT A. NANZ[1]

Florida Chemists and Engineers, Inc.

Orlando

The appeal of sweet potatoes, canned and ready to heat and serve, is greatly increasing the demand. Canned sweet potatoes eliminate selecting, cleaning and peeling the fresh potato, making it easier to serve sweet potatoes in homes and institutions. They are uniform in texture and color. Convenience and the ready availability of the canned product is obvious.

As an aid to the grower and to prevent waste, odd sizes and small potatoes can be used. Also such culls as cut potatoes, those injured in digging, or abnormal shapes are usable.

VARIETIES

The "Sweet Potato Production Guide"[1] recommends the Unit No. 1 Porto Rico type as the best presently available type for best growth in Florida. There are certain other varieties which are considered to have added advantages.

Nettles[4] outlines these varieties: Heartogold, Earlyport (1240), Goldrush and Allgold. However, they have not shown superior yields in field trials. Heartogold might turn out to be useful in canning when production yields are improved.

YIELDS

Yields per acre on the Porto Rico variety are given in the Sweet Potato Production Guide[1]. Average yields over period of 1946 to 1950, in the La Crosse Area, are 68 bushels per acre. Nettles[4] reports that, in controlled fertility plots at Gainesville, over 200 bushels per acre have been obtained.

The future of canning in Florida calls for such increases in yield and careful study of the economics involved. At the present time, the dual purpose sweet potatoes are the only source of the crop for canning. There remains to be developed an ideal potato specific for canning in this area.

[1]/Formerly Research Representative, Crown Can Co., Orlando, Florida.

CURING

Preparation of the part of the crop to be used for canning entails care in curing which allows for extended storage. The canning period can thereby be extended. Woodroof[5] states that cured sweet potatoes are better for canning. It has been found that cured sweet potatoes can be used for canning from October to February. Freshly dug sweet potatoes are harvested in the period July to November in Central Florida, later in north Florida, earlier in south Florida[1].

Curing technic is outlined in the Production Guide[1]. Storage temperature control is recommended and given in this bulletin also.

CANNING TECHNIC

The process for syrup-pack canning of sweet potatoes entails care in preventing discoloration of the product as well as preventing undesirable softening of the Porto Rico type sweet potato.

Grading for size results in the 1¼ inch diameter or less being used for syrup pack. In some cases, however, the larger sizes are used and, after peeling, are cut to 1 inch square lengthwise pieces, using 2 cutters in line.

The sweet potatoes are tumbled dry to remove loose dirt. They then pass over a continuous belt that allows workers to trim off excess vines and cut off the ends of the sweet potatoes requiring trimming. Cutting boards are used and the workers merely trim them by hand with knives. Washing follows. This serves to wet the skins and facilitate the lye peeling. They then pass into the lye peeling tank. This is usually a large, long tank 15 to 20 feet long. Some use a two-stage tank which tends to conserve the lye, building up the percent in the second tank. The lye peel contains 8-9% caustic. It is held at 210° F. The sweet potatoes stay in the lye peel between 8 to 10 minutes. This is followed by a squirrel cage removal of the softened peel, aided by water sprays, spraying down from the center on the potatoes as they tumble in the squirrel cage. The squirrel cage may be 15 to 20 feet long. Should the squirrel cage act effectively additional steaming, which is some-

times used, may not be needed. However, if the lye peel is not too effective, steaming and brush washing will remove the remains of the peel.

The potatoes are held under water in buckets or basins to be taken to the hand trimming tables. 1% citric acid solution is of use when darkening occurs during this holding period. The sweet potatoes are hand trimmed and nubbed and they are returned to the water and kept covered. Buckets are dumped into conveyors which carry the sweet potatoes through the cutters, if used, and hence to a blancher. Blanching for 1 to 2 minutes at 140° F. helps to maintain the good color and prevent darkening. They are then inspected a second time for discolored parts and hand packed into the cans. Cans are filled to the desired headspace with hot sugar syrup, 160 to 170° F. Syrup in the range between 30 to 45° Brix is used, the concentration depending on the sweetness desired and the sugar content of the sweet potatoes. The filled cans then pass through an exhaust box maintained at 150° F., passing through in about 10 minutes. Every attempt is made to close the cans at 150° F., establishing adequate headspace to insure proper vacuum. The cans are then sealed. The cans are processed for 60 minutes at 240° F., or 35 to 40 minutes at 260° F. in pressure retorts. Water cooling to 100° F. follows.

Should discoloration occur, the use of the previously mentioned 1% citric acid solution, into which the sweet potatoes are placed after peeling, helps neutralize the lye that may remain in the sweet potato tissues. The citric acid solution will become used up if a large number of sweet potatoes are held in it and should be replenished. If the plain water used to keep the peeled sweet potatoes covered does not contain excess dissolved oxygen, this plain water should prevent discoloration during trimming and nubbing.

Woodroof[5] suggests using from 10 to 25% corn syrup replacement of the syrup made with granulated sugar. This helps firm the potatoes without making them excessively sweet. Especially if a higher Brix syrup, up to 45° Brix, is used.

Solid pack, sweet potatoes canned whole, without syrup, or vacuum packed potatoes, also without syrup, are not practical when the Porto Rican type sweet potato is to be used as it softens excessively in the cook and requires contact with sugar syrup to maintain its texture and sugar content satisfactorily.

Special Packs

Pureed sweet potatoes[2,3] are worthy of consideration. Any size potato can be used. Peeling is unnecessary as the washed and cooked potatoes can be pulped through stainless steel finishers rapidly. The product is usually uniform in color and consistency, strings and fibrous parts being removed. Sugar syrup, 50%, is usually added to the puree in amounts of between 15-20% by weight of the puree. Citric Acid, 0.2%, can be added to prevent green discoloration when the product is ultimately used in pie making or souffles.

The process for the cooking of pureed sweet potatoes is different from that used in the syrup pack, and requires special advice from a competent authority on canning.

Summary

Research on improved varieties for canning, better yields from these acreages, is aimed toward expanding the industry. The future of profitable canning of sweet potatoes depends on such research. The demand for canned sweet potatoes exists strong and Florida can be a factor in providing this need.

Active sales depend on a quality pack. Care to follow all precautions during the canning preparation and handling is essential. In order to have a product equally as acceptable as those packed in other sweet potato growing areas, the Florida canner must use recommended technics. Grading the peeled product to remove substandard pieces, poorly peeled or under size, is of great help in getting the quality pack.

No carry over of the pack should result if the sweet potato is canned under careful supervision.

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