AGRICULTURAL EXPERIMENT STATION
Oregon State College
Wm. A. Schoenfeld, Director
Corvallis

Circular of Information No. 201 June 1939

DRYING AND BLEACHING WALNUTS

by

E H. Wiegand and L. O. Van Blaricom

The green walnuts are harvested during the fall of the year, therefore, they should be dried as soon as possible to prevent molding. When nuts are harvested during wet and rainy weather, special haste is necessary to get them into the drier as mold attacks the inside of the shell as well as the outside.

WASHING

Several types of washers have been developed to cleanse walnuts before drying. Probably the most common washer consists of two long cylinders of matt brushes, rotating in opposite directions. A spray of water is arranged above the washer so that all dirt and adhering fiber is washed free from the nuts as they proceed through the length of the machine. It is important that all adhering particles be removed as they tend to stain the shell permanently.

DRYING

Walnuts are usually dried at temperatures ranging from 90 to 100° F. In no case should the walnuts be dried at temperatures exceeding 110° F. as this causes cracking of the shells and high temperatures tend to cause rancidity of the nut oil during storage. The average drying time is about 36 hours, but this depends entirely on the method of drying used. In the case of recirculation Oregon tunnel drier, the drying time is approximately 36 hours. Drying time for natural draft kiln driers, where the walnuts are approximately 6 inches deep, is about 50 hours. In the case of bin-type driers with fans, drying time is 18 to 24 hours. In the bin-type drier, the walnuts are piled about 2 feet deep in each bin and warm air is forced through the nuts by a large ventilating fan. In this way the drying is speeded up and time is saved in drying.

BLEACHING FOR SMALL LOTS

Walnuts should be thoroughly dried before bleaching. Bleaching is generally done through the use of sodium hypochlorite. This is manufactured under various trade names.* Chlorine is the active bleaching agent in this compound and solutions of sodium hypochlorite should be made so there is 1.1 to 1.75 per cent chlorine in the solution. For example, a commercial brand of sodium hypo-

chlorite manufactured under the trade name "Clorox," contains approximately 16 per cent chlorine. This should be used at the rate of 2 1/2 gallons to 35 gallons of water to make a 1.1 per cent solution.

To bleach, pour the previously dried walnuts into the solution, and by gently stirring, keep them in contact with the solution for about 3 minutes or slightly longer as the nuts may require.

If the nuts do not acquire a satisfactory bleach by this treatment, the activity of the bleach solution can often be increased by adding 1 pint of strong vinegar to every 5 gallons of bleaching solution.

After bleaching, drain the walnuts from the solution, rinse, and place the nuts in an open crate or tray to dry for 24 to 48 hours. Walnuts should not be dried in the sunshine after bleaching or many will split. Always dry in the shade, preferably indoors in a draft or in the drier with low temperature.

BLEACHING IN LARGE LOTS

When bleaching is done on a large scale, using horizontal rotating drums, sulphuric acid is added to the bleach solution in place of vinegar. This is used at the rate of 8 fluid ounces per 75 gallons of bleach solution. The acid should be added just previous to bleaching.

The drums rotate at approximately 6 r.p.m. It is important that a constant stream of fresh bleach solution be kept running into the drums at all times, the optimum rate being about 1 1/2 quarts per minute per drum.

DEALERS SUPPLYING SODIUM HYPOCHLORITE

*1. Osmund and Co.,
218 N.E. Broadway,
Portland, Oregon
Trade name "Chlor"

2. Van Waters and Rogers, Inc.,
646 N. Thompson Street,
Portland, Oregon.
Trade name "Chlor"

3. Hunt Transfer Co.,
403 N.W. Fifth Street,
Portland, Oregon.
Trade name "Chlorox"

4. Ramage, Inc.,
Salem, Oregon.

This information is the result of investigations carried on with the cooperation of the Works Progress Administration. O.P. 465-94-3-110, W.P. 2106.