

Station Circular of  
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DRYING AND BLEACHING WALNUTS

by

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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 mat brushes, rotating in opposite directions. A spray of water is arranged above the washer so that all dirt and adhering filth are 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 driers, the drying time is approximately 36 hours. Drying time for natural draft kiln driers, where the walnuts are approximately six 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 two 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 percent chlorine in

the solution. For example, a commercial brand of sodium hypochlorite, manufactured under the trade name "Clorox," contains approximately 16 percent chlorine. This should be used at the rate of 2-1/2 gallons to 35 gallons of water to make a 1.1 percent solution.

To make up bleach solutions using chlorine bleaching agents of different strengths refer to the table for the exact amount of the product to use. Most of the chlorine bleaching agents sold are labeled with the exact amount of chlorine available.

<u>Chlorine Content of Bleaching Agent</u> %	<u>Amount to Use for Each Gallon of Solution</u> fl. oz.
5	28
6	23 $\frac{1}{2}$
7	20
8	17 $\frac{1}{2}$
9	15 $\frac{1}{2}$
10	14
11	13
12	12
13	11
14	10
15	9 $\frac{1}{2}$
16	9
17	8 $\frac{1}{2}$
18	8
19	7 $\frac{1}{2}$
20	7

To bleach, pour the previously dried walnuts into the solution, and by gently stirring, keep them in contact with the solution for about three 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 one pint of strong vinegar to every five 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 COMMERCIAL 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 eight fluid ounces per 75 gallons of bleach solution. The acid should be added just previous to bleaching. Caution:--In making up the solution always pour the sulfuric acid into the water slowly, stirring constantly with a wooden paddle. Never pour the water into the sulfuric acid,

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. Drying in a warmed air stream in a rotating drum drier or dehydrator is satisfactory.

DEALERS SUPPLYING SODIUM HYPOCHLORITE

- \*1. Van Waters and Rogers, Inc.  
646 North Thompson Street  
Portland, Oregon
2. Wallace & Tiernan Sales Corp.  
444 S.W. First  
Portland, Oregon