

Handling Peculiarities of Hardwood Seed Dry Fruits

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The Zanesville Nursery receives many different types of hardwood seed during the year. We receive them for two reasons: First, we have the only seed extractory for tree seed in Ohio. Secondly, because of our central location in the State, we are used as a collecting and transfer point.

Dry hardwood seeds received by us are immediately placed in cold storage to reduce the possibility of heating. The cone collecting room is kept at a temperature of 33 to 37° F. The bags of seed are placed on slotted racks to facilitate air circulation.

Dry fruited seed received and collected by us consists of the following species:

European Black Alder	Cottonwood
Green Ash	Large Tooth Aspen
White Ash	Red Gum
Black Locust	Red Maple
Sycamore	Sugar Maple
Tuliptree	Silver Maple
Basswood	

Our handling of these species are as follows:

The European Black Alder cones are picked the first week of October when they are turning brown. They are air dried at 90° F. in a heated room for some 3 to 4 weeks. They seemingly cannot be rushed and this method of opening the cones is far superior to using the kiln. The reason we do not use the drying shed is that by the time we process our conifer cones, the air outside is quite cool and humid. I believe that due to the resin in the cones is the reason they are quite slow opening. After tumbling the cones for some 20 to 30 minutes per charge, the seed is run through the seed cleaner twice. The moisture is checked to make sure it is in the 7% to 8% range and then it is sealed in plastic bottles at 22° F. We have kept seed some 4 years with little or no loss of viability.

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When sowing this seed it is broadcast with a Gandy Seeder in the Fall at a rate of 14 oz's per 400 sq. ft. of bed space. The big secret of success with this seed is to just barely cover it with a layer of sawdust. You should be able to see some of the bed surface. The beds are mulched down for winter with straw.

Green. and White Ash, when. received in the Fall, are spread out to air dry for 3 to 4 weeks. The seed is cleaned and stored in sealed plastic containers at 33° to 37° F. We have kept White Ash up to 10 years and Green. Ash, 3 years with good results. Both seed are sown. in the Fall at: a 1/2" to 3/4" depth by hand at a rate of 40 per sq. ft. for Green Ash and 30 per square foot for White Ash<

Cottonwood and Large Tooth Aspen are picked just as the pods are starting to open. in. the Spring. The seed is placed in cold storage and strings are tied on the stems of the catkins. The shades are bucked up over the roughed up seed bed area and the catkins hung from the shades about every 10 to 12 inches in 3 rows. Very even stands are received by this method. No attempt is made to hold seed of these two species. These seeds are probably two of the most critical to handle. You dare not let the seed dry or heat or you lose the viability. The seed is so fine that there is a danger of this. Dick McNabb used to remove the "cotton" from this seed before sowing it immediately in a Candy Seeder.

Red or. Sweet Gum balls are placed in cold storage and. later in the winter are air dried for some 3 weeks. They are then dried in the kiln at 100° F. and 0% humidity until they fully open. They are run in our small tumbler, the seed cleaned, and placed in sealed plastic containers at 22° F.

The seed is sown in the Fall at a rate of 4 1/2 oz's per 400 sq. ft. , mulched with 1/4" of sawdust: and straw placed on. it for winter.

Black Locust seed is collected in September and air dried for 3 or 4 weeks. The seed is extracted by running it through a combine. It is cleaned and stored at 33° F. in. sealed flasks and keeps for many years. The seed is treated in. an acid bath for 17 minutes to soften the seed coat. After washing and drying the seed it is sown the last week in June. A regular drill is used at a rate of 22 oz's per 400 sq. ft.

Red Maple and Sugar Maple are air dried, cleaned, and stored in sealed plastic containers. Silver Maple is not stored by us but Red and Sugar have been.. Two years has been the maximum length of storage. However, Leroy Jones states in his storage recommendations

in Tree Planters Notes #55, that Red Maple has been held up to 23 years with viability retained. Tile Sugar and Red Maple are sown in the Fall at a rate of 40 seeds per square foot and mulched down with sawdust and straw. The Silver Maple is sown in the Spring and is sown at the same rate.

Sycamore balls are collected in January or early February and then air dried in a heated room of 90^o F. until they fall apart under a small amount of pressure. The seed is stored in sealed containers at 33^o F. We have held seed for several years with good results. The seed is sown by hand by covering the seed bed with seed. It is pressed into the ground with a roller and covered with sawdust. Carl Bailey removes the "fuzz" from his seed and broadcasts it with a Gandy. The "fuzz" removal is a very "itchy" job as Carl can well testify.

Tuliptree cones are collected behind loggers in late September and October. The cones are air dried for some 30 days and then run through a hammer mill to break them up into individual seeds. Earl Belcher, at the Macon Seed Lab, ran a series of X-ray tests on machine broken seed as compared to hand broken seed. There was not any difference. The seed is placed in stratification pits up to 6 years. I have found that the longer the seed is in stratification, the better the germination. No matter how thickly you sow the seed, the stand will be poor if it has not had the seed coat softened sufficiently. The seed is sown with a sawdust spreader in late October, mulched with sawdust, and the beds covered with straw. This is the last species to germinate for us in the Spring.

Basswood is collected from the tree when the seed coat has turned completely brown and has not dropped or can be shaken from the tree. The seed is sown immediately in order to prevent loss of moisture at a rate of 200 seeds per square foot. The seed beds are kept moist in order to prevent the soil from drying the seed. We have never attempted storage of this seed.

1. European Black Alder

Ohio: 22^o F. - 7% indefinitely

Jones - 33-38^o F., 7-10%

Seed Manual - Dry Storage

2. Ash - Green

Ohio: 3-4 weeks - dried, 33 to 37^o, 3 years supply

Jones - 7-10%, 33-38^o F.

Seed Manual - 7.3% hum. -temp. up 85^o F. - no loss

3. Ash - White
Ohio: 3-4 weeks - dried - up to 10 years, 33 to 37° F.
Jones - 7-10%, 33 to 38° F., 7 years
Seed Manual - 34 to 38° dry 1 year - no loss
4. Cottonwood
Ohio: Never held
Jones - 5-6% below 32° F.
Manual - no really successful storage known.
5. Red Gum
Ohio: 7% - 22° F.
Jones - dry, 33-38° F., 1 year
Manual - dry storage at least 1 year
6. Black Locust
Ohio: air dry, 33-38° F.
Jones - dry, cool
Manual - dry storage, 32-40° F.
7. Red Maple
Ohio: not stored
Jones - 33-40°, 10% - 23 years.
Manual - Sealed-moist. 41° F, 15% loss - 21 months
8. Silver Maple
Ohio: Never held
Jones - 30-35%, 33-35° F., not over 1 or 2 years
Manual - moist, 32 to 50° F., not over 1 year
9. Sugar Maple
Ohio: 33 to 38° F., air dry
Jones - dry 33-38° F., not over 1 or 2 years
Manual - 36 to 40° F., not over 1 or 2 years
10. Sycamore
Ohio: Air dry, 33-38° F.
Jones - dry, 33-38° F.
Manual - sealed, 35 to 41° F., on trees

11. Tuliptree
Ohio: Stratify up to 7 years
Jones - Moist., 33-38° - 2-3 years
Manual - stored dry over winter, germ., 2nd year
12. Honey Locust
Ohio: Store
Jones - dry, 33-38° F.
Manual - 32 to 45° F., 32° + optimum - dry
13. Kentucky Coffee Tree
Ohio: Dry, 33-38° F.
Jones -
Manual - cold dry storage
14. Basswood
Ohio: Never hold.
Jones - dry, 33 to 38° F., below 32° better.
Manual - dry at room temperature for 2 years. For longer storage,
low temp. necessary.