CHAPTER 5
COLLECTING THE SEEDS

Introduction

This chapter is written to provide overall guidance to achieving regular collections of high quality, viable seeds and nuts. Some of the information will be general and some will be specific.

The preceding chapter set the stage for collection by assembling information about seed availability and seed needs. Good notes and maps will need to be provided to collectors.

A key point not mentioned until now is GET PERMISSION TO COLLECT SEED on private and on public property. Very few, if any, individuals will refuse permission, and it will help keep the door open for future collections.

Make collections where seed is abundant. Whether hand or machine collecting, it is not likely that more than half of what a particular tree produces can be collected. The other half of the seed will be available for wildlife. Be assured that tree seed collection will have a minimal and very localized impact on seed-eating wildlife. Seed collection will simply harvest the surplus of a bumper crop.

Quality Criteria for Collecting

This section is provided to give overview and guidance on collecting high quality seed. It is best to collect from healthy, robust trees. If the seed tree has a large, premature seed or nut drop, the seeds are less desirable. Also if the seed tree appears stressed, chances are the later drop may be less desirable as well.

Before collecting, pick up a sample of seeds or nuts randomly around the tree and open them to assure a high percentage of viable seed. If not, do not waste time collecting.

A good indicator of quality seeds will be wildlife activity. Normally, if squirrels are feeding in the tree, the seeds or nuts will be viable.

Look for evidence of excessive insect (weevil) boreholes in the seeds or nuts. Normally, a poor or mediocre crop is infested with insects. Pass these trees by for trees that are less infested. Those with a heavy nut-fall have less insect damage.

There is some evidence that large seeds produce larger, more vigorous seedlings. The larger the nut for the species, the more likely it will survive the early establishment stresses. If a tree or its limbs can be shaken at the time when seed is just reaching maturity, the largest quantity of high quality seed can be obtained.

In summary, make collections from healthy, robust trees that have healthy, relatively insect-free nuts or seeds.

When, Where and How of Woody Seed and Nut Collection

This section will attempt to cover all the key information needed to successfully collect high quality seed and nuts. Species are listed in the order they appear in Chapter 3.

Green Ash

Normal Seed Maturity

Fruit ripening occurs late September to late October. Ash fruits are elongated, winged, single-seeded samaras that are borne in clusters. Seeds are ripe when their color has faded from green to yellow or brown. Another index of maturity is a firm, crisp, white, fully elongated seed within the samara. Seed is naturally dispersed from October through spring.

Quality Collection Sites

Since green ash makes an excellent landscaping tree, look in parks, yards, and any other similarly mowed or kept areas in residential or commercial settings. Seed crops are normally heavy every other year. Green ash and white ash are seldom abundant the same year in a given locale.

Methods of Collection

Seed clusters may be picked by hand or with pruners and seed hooks. Fully dried samaras may be shaken or whipped from limbs of standing trees onto ground sheets or tarps. Samaras can also be swept or blown from paved streets or other hard surfaces after they fall.

White Ash

Normal Seed Maturity

Fruit ripening normally occurs from October into November. Seed dispersal dates range from late September through December. See ripeness characteristics as listed under Green Ash.

Quality Collection Sites

Same as Green Ash. Seed crops are only heavy every 3 to 5 years.

Methods of Collection

Same as Green Ash.

Baldcypress

Normal Seed Maturity

The globose cones turn from green to brownish purple as they mature in October to December. The cones are composed of a few four-sided scales that break away irregularly after maturity. Each scale bears two irregularly shaped seeds that have thick, horny, warty coats and projecting flanges. Cones contain 18 to 30 seeds each, which fall apart when fully ripe.

Quality Collection Sites

Collect seeds only in the southern two-thirds of the state as cones in northern sites often will not fully mature. Collections can be in or near standing water or along roadways or other dry sites. Seed crops normally occur every other year.

Methods of Collection

Collect cones by picking them by hand. Flailing sticks can be used to knock cones from trees. If over water bodies, lash 2 "john boats" together to catch falling cones. If over dry land, catch cones on netting or tarps spread under the trees.

Black Cherry

Normal Seed Maturity
Fruit ripening occurs in late June and July. Fruit is nearly black when ripe.

Quality Collection Sites
Collect seed throughout the state, but quality sites are more common north than south. Look in old pastures, fencerows, and other wooded areas.

Methods of Collection
Collect fruit by hand, stripping from the tree or by shaking from the tree onto a tarp laid under the tree.

bag-a-nut device for seed collection

Hickories

Including mockernut, shellbark, shagbark, pignut, bitternut and water hickory.

Normal Seed Maturity
All species mature during September and October. Seed is dispersed from September through November. Husks turn color (green to brown or brownish black) and begin to split at maturity.

Quality Collection Sites
Collect seed in wooded areas, along creeks, in parks, along roadways, and in subdivisions. Most species have heavy nut crops every 1 to 3 years, with the exception of bitternut hickories, which have heavy crops every 3 to 5 years.

Methods of Collection
The most common method is to hand collect under trees with heavy nut fall. Gather nuts after wind storms shake trees in areas regularly mowed and relatively free of leaf litter.

Oaks

Including white oak group (white, swamp white, bur, swamp chestnut, overcup, and chinkapin) and red oak group (black, cherrybark, nuttall, pin, red, shingle, shumard and willow).

Normal Seed Maturity
Full range of maturity is August through November. Typically, late September through early November for most species. The white oak group falls earlier than the red oak group.

Quality Collection Sites
Find specimen trees in parks, lawns, pastures, along roads, or adjacent to creeks in areas not heavily insect infested or destroyed by squirrels. Mowed and maintained areas are best.

Methods of Collection
If in a mowed and maintained area, rake or use the bag-a-nut machine to rapidly gather acorns. Bag-a nut collected acorns will need to be cleaned and sorted. If area is littered, use a leaf blower to remove most lighter debris before collection. Hand collection is always possible and allows for initial separation of damaged acorns and other debris from good acorns. Time collection to occur before mower damage.

Pecan

Normal Seed Maturity
Fruit ripening occurs from September to October. Once husks change color and begin to split, seed is mature.

Quality Collection Sites
Collect seed in bottomland areas where mowing occurs, generally near levees, in fencerows, in cropped fields, in parks, or along roads where specimen trees are accessible.

Methods of Collection
Nuts can be collected from the ground using a bag-a-nut after natural seed fall or after shaking or flailing limbs. Catch nuts on ground cloths.

Persimmon

Normal Seed Maturity
The fruits ripen from September to November. Mature fruit is yellow, orange or yellowish-brown in color and slightly soft to firm to the touch.

Quality Collection Sites
Collect seed any place that specimen trees or groves of trees develop plump, full fruits, typically at woodland edges, in fencerows, along crop fields, and in odd, densely shaded areas. Look on sandy, dry soil sites or bottomlands.

Methods of Collection
Gather fruits from the ground when soft or pick directly from trees when fruit is orange and becomes soft. If local individuals process fruit into pulp, arrange to have the seed saved. Spreading a net or tarp on the ground and shaking limbs can be very effective.

Sycamore

Normal Seed Maturity
Fruiting heads of American sycamore mature after they turn brown, usually mid to late October. Seed balls (fruiting heads) occur heavily every other year, with some occurrence every year.

Quality Collection Sites
Look for open-grown trees planted as ornamentals in lawns, parks and other maintained areas. Also try field-woodland interface areas, in pastures, and along creek banks.

Methods of Collection
Balls can be collected from mid-October until spring. Seed collected from trees or ground in late winter has been stratified naturally, but many seed balls may have shattered and make collection impossible. Collect from the ground or directly from the trees.

Tuliptree

yellow-poplar

Normal Seed Maturity

Cones ripen in September and should be collected while they are slightly green to tan in color.

Quality Collection Sites

Look for specimen trees in lawns, parks, and open woodlands with little understory. Look for opportunities to collect after recent logging operations in woods where yellow poplar has been cut.

Methods of Collection

Lay a drop cloth under the tree to collect mature seeds as cones dry and break apart. Flailing branches will also shatter cones. Collect cones from cut trees during logging operations. Collect cones by climbing trees or using an extension pruner to cut off seed cones. Collection of cones from upper branches normally has a higher yield of viable seed than from lower branches.

Black Walnut

Normal Seed Maturity

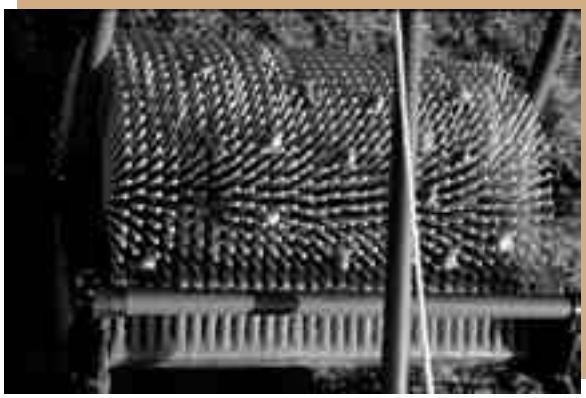
Fruit ripens by late August to early October. Nut shells that are hardened and cannot be cut with a knife are mature.

Quality Collection Sites

Collect from groves or single specimen trees that have good sized, viable nuts.

Methods of Collection

Hand collect, rake, or use the bag-a-nut machine in maintained locations after nut fall is heavy and outer hulls are still moist and intact. Best collection areas are in lawns, parks, in fencerows of crop fields, and other semi-maintained locations.



ASSURING SEED QUALITY

This subsection is provided to help assure that any seed collected is properly handled before planting. The points stressed here will help maintain and/or improve the quality and viability of the seed collected or purchased for immediate planting or for later planting after storage and stratification.

The first opportunity to assure high seed quality occurs at collection. Careful scouting will eliminate collecting from sites that yield poor quality seed. This section will provide the essentials for processing collected seed.

Cleaning, processing, bagging, handling, storage, and tagging lots will be covered. All the species discussed in the previous subsection will be covered. Some repetition will be noted in Chapter 6, which covers in more detail some of these same subjects.

Key Points

1. Early seed drop is suspect and often has low viability compared to later collections.
2. If a variety of species are to be planted, be advised that all the species are not likely to fall and be available at the same time.
3. Do not delay or postpone these activities.
4. Keep nuts and fruits collected in a cool, protected place, out of direct light.
5. Organize seed processing area for efficient use.
6. Do not let seeds and nuts dry out or heat up before processing.
7. Watch out for excessive heat generation and mold formation. Avoid tall stacks.
8. Tag or label all bags of species and lots individually and maintain separation.

Specific Points

Ash

Place in shallow trays in ventilated areas to dry. When dry, crush and separate seed from debris. Sow about ½ inch deep before the end of October, if possible. If storing, place in dry closed containers and place in cooler at 40°F until planted.

Baldcypress

Collection should be complete by early November. Place cones in an area that is protected with good air flow and let cones thoroughly dry. Shred or break cones by trampling. Remove coarse debris. Seed and remaining fine debris can be scattered where desired if the soil is loose enough to accept seed. Store any seed to be planted later as uncrushed dry cones in boxes or burlap bags at low temperatures but above freezing until planting. Crush, separate and seed as described above.

Black Cherry

Immediately after collection, crush and mash fruits through a wire mesh to separate seeds from skins and pulp. Wash seed into a shallow box. Rub as you wash. Seed to be used within a few weeks or months should only be surface dried (a few hours), then bagged in sealable plastic bags and placed in a cooler until planted.

Seed to be stored over winter should be dried at room temperature only about 1 day. Place in 4 mil sealable bags and lay flat in a cooler at about 40°F. Check and rotate bags occasionally to be assured seeds are not molding. Seed can be surface spread fall or spring in areas with loose soil. If mechanically seeded, plant only ½ to ¾ inch deep.

Hickories *all species*

After collection, keep nuts in an area that is protected from squirrels and where drying will be slow. Remove hulls, other debris, and insect damaged nuts by hand. Fall plant as soon as possible at about 2 inches deep with good soil contact. Any nuts to be stored should be air dried, placed in airtight containers, and placed in a cooler at 36° to 40°F. Pit stratification is an alternative storage method if space and conditions permit. Soak for 2 to 4 days, then bury at least 2 feet deep. Obtain specifics for this method from the references listed.

Oaks *all species*

After collection keep in a cool, shady area in burlap or loose weave onion bags until separation from debris and inferior seed. It is best to process acorns of the white oak group right after collection due to their tendency to sprout. To restore normal moisture content, soak acorns in a large tank or tub for at least 4 hours within 24 hours of collection. Plastic children's wading pools are inexpensive containers for soaking acorns. "Float off" inferior seed, caps and other debris. Note that bur oak and overcup oak acorns will float. These species must be hand sorted. Hand sorting of floated acorns greatly increases seed quality. Plant seeds as soon as possible or bag in burlap or fine weave onion sacks and store in a cooler at about 40°F. Check condition regularly, particularly for moisture and sprouting. Sprouted acorns are okay, but more susceptible to dehydration.

Any acorns to be stored over winter must be moist. Soak about 12 to 24 hours, drain, place in sealed bags (1.75 mil for white oaks group; 4 mil for red oak group) and place in a cooler at about 34°F. Inspect and rotate bags periodically to drain off excess condensation. If no condensation occurs, add moisture to the bags. Plant as soon as possible after removal from the cooler. Plant white oak group within 6 months. Discard any acorns of the red oak

group not planted the next spring or early summer unless you can store the acorns in carefully controlled temperature and moisture conditions.

Pecan

As soon as collected, place in a cool, shady area to grade, sort, and remove unwanted nuts, hulls, and other debris. Fall plant as soon as possible at about 2 inches deep with good soil contact. Any stored nuts should be air-dried, placed in a sealed container, and then place in a cooler at about 40°F.

Persimmon

As soon as possible after collection, remove the seed from the skin and pulp. Do not let fruit heat and ferment or become moldy. Place in a shallow tray with wire mesh bottoms that will let pulp sift through but not seeds. Wash and rub fruits to remove most of the pulp and skins. Once clean, spread seeds in shallow trays to dry. Plant in fall or store dry in sealed containers at about 40°F.

Sycamore

After collection, whether late fall or late winter, the seed balls should be placed in shallow trays and dried until they can be easily broken apart. Rub over a fine screen to remove the fine hairs attached to individual seeds. This is a dusty job, so wear gloves, goggles, and a dust mask.

If seeds are to be sown soon after collection, they may be stored in a cool, dry, well ventilated place in open mesh bags or in shallow trays. Crush fruit heads (balls) and rub out seeds for planting.

Tuliptree *Yellow-Poplar*

Complete cones or seed collected by shaking will not be completely dry and should be placed in shallow trays to finish drying. Rub cones after completely dry to break apart. Fall seed or store dry in sealed bags or cans at about 40°F.

Black Walnut

After collection, place seed in burlap or onion sacks to transport. Keep cool and out of sun. If the nuts will be hulled, be sure to complete before the hulls dry. Old corn shellers or mechanical hullers can be used. Float and wash hulled nuts. Spread to dry or fall plant 2 to 4 inches deep. Stored walnuts should be treated the same as the hickories (see above). Be advised that unhulled nuts will eventually decompose and produce a black liquid that will stain anything it contacts.

REFERENCES

Growing Illinois Trees From Seed. 1983. Circular 1219. C.E.S., College of Agriculture, University of Illinois, Urbana-Champaign. 32 pp.

Seed Collection Manual. Circa 1980. Illinois Department of Natural Resources, Division of Forestry Resources. 23 pp.

Seeds of Woody Plants in the United States. 1974. Agricultural Handbook No. 450. USDA-Forest Service. 883 pp. Available on the Web at: http://wpsm.net/
OR
Seeds of Woody Plants in North America. 1992. Young, J.A. and C.G. Young. Dioscorides Press. 407 pp.

NOTE: *Copies of all of the above are available for up to a 2-week loan from the NRCS State Agroforester. Some references may also be available from IDNR District Foresters, the IDNR Forest Management Staff Forester, and the State Cooperative Extension Forester.*