

Honey Locust (Gleditsia Triacanthos)

Notable Features:

6:2:0 carb:protein:fat 1-2% fat. plus fat and protein in the seeds; cattle can't digest seeds. Sheep, horses, pigs, cattle, and goats can digest seeds entirely. Up to 35% sugar and 12% protein. Leaves and twigs make good fodder. May cause light headedness in humans by variety caused by spiciness; if human-safe in quantity, dry storage is possible, and green pod dropping is possible: dried powder could be used as sweetener and could replace sugar. Likely kills parasitic worms in livestock with spicy pods; spicy pods are antiseptic and may help RA. Very rich in phytochemicals. Prefers soil pH between 6.0 and 8.0. Different varieties bear on alternating biannual cycles; not synced. Can drop fruit from Sept to March. Hershey fed 2 handfuls of pods a day to his draft horse. Browsing and pruning increases thorniness response.

Notable Varieties:

Schofer - Pennsburg, PA. More hardy than Calhoun and Hershey thought fixed the hardiness problem. Hershey Sold.

Smith - A hardy variety for Northern planting. Hershey Sold

Heather - Very hardy and productive but skinny pods

Ashworth - found in PA

Hershey -

Big Fatty - Annual Bearing. Doesn't fill as well some years but still solid. Hershey selected from seedlings. 37% sugar according to Austin

Millwood - Cherokee. 36.8% sugar in Alabama but 21% sugar in Maryland. Not hardy enough. The most productive of hershey. An 8 year graft produces 200 lbs fruit.

Calhoun - 38% sugar. Cherokee. Not hardy enough. An 8 year graft produces 60lbs of fruit.

Piat - (1,1) in the Kelloggs planting. Piat, New York. Many pods holding in tree, ground is covered as well. Good juiciness. V trunk ground covered. Strait flat pods. Bad form but could be due to being the North most tree. Zach's second favorite. 0 thorns.

Monroe - (20,22) in Kelloggs planting. From Monroe, Arkansas. The best there by far. Very juicy. Many seeds are not produced on one side often and the whole area is well filled with pulp. Good tree form. Single trunk to 10ft. 0 thorns. Sour and mild bitterness. Strait pods once on the ground. 10% protein, 20% ADF, 22% NDF, 35% sugar in 2021, 53% moisture

Lancaster - (25,10) in Kelloggs planting. Lancaster, PA. Thorny up to 10 ft but half siblings were not thorny.

Trodder - Selection by Austin Unruh from TN

Breeding Goals:

Animal preferred flavor, thornless, high bearing, spreading form, winter dropping, annual bearing, waxy coating to reduce winter degradation due to water, thin shell to the husk, thin seed cavity casings (reduced fiber), parthenocarpy/good fill on seedlessness/low seediness (reduces seed cavity fiber and increases sugar), thick and wide pericarp (increase volume of sugar for amount of fiber), ripens to amber prior to dropping

Growing Notes:

Genetics: Most quality varieties are sourced from cherokee territory; the cherokee (and Iroquois) revered the honey locust and likely bred for high sugar. Naturally biennial or triennial; different varieties bear on alternating biannual cycles; not synced. Thorns are flexible and green when young so plants are still grazed by animals, even on thorny varieties. Polygamodiecious.

Northern pods tend to have more seeds and less pulp (50% pulp for north, 75-95% for south). There is a large amount of genetic variation in both southern and northern populations for all characteristics of spring growth, fall dormancy, pod production, pod pulp, thorniness ect.

For a wild seedling sample:

<u>Trait</u>	<u>Mean</u>	<u>Min.</u>	<u>Max.</u>	<u>s.d.</u>
- - - - Pod - - - -				
Morphological				
Total pod weight (g)	9.3	2.1	22.1	3.5
¹ Weight pericarp fraction only (g)	7.3	3.0	21.4	3.1
² Pericarp fraction (%)	73.6	45.4	97.6	11.4
Pod length (cm)	29.0	17.9	41.3	5.0
Pod width (cm)	2.9	1.9	4.7	0.60
Pod thickness (cm)	0.3	0.08	0.65	0.13
Chemical				
Total sugars (%)	22.4	13.6	30.9	3.7
Nonreducing sugars (%)	19.8	12.5	28.2	3.3
Reducing sugars (%)	2.7	0.68	5.0	1.1
³ Total sugars perpod (g)	1.6	0.41	6.6	0.26
³ Nonreducing sugars per pod (g)	1.4	0.38	6.0	0.23
³ Reducing sugars per pod (g)	0.2	0.02	1.1	0.03
- - - - Seed - - - -				

A-Sexual Propagation: Buzz says his grafts always burn down to the union even given a year protected from cold. He hasn't figured it out yet. Scion doesn't store well for locust without moisture according to zach.

Sexual Propagation: Austin finds 20% thorn on yearlings and another 20% later on from hershey genetics

Properties:

Mucilage polysaccharides swell to gel in water and gum polysaccharides dissolve in water

Questions:

Does the a waxy shell reduce water expulsion from pulp and reduce ripening speed? Do animals still like unripe honey locust?