



MIDWEST
ELDERBERRY
COOPERATIVE

The Little Berry that Could

January 2020

GROWING ELDERBERRY IN THE UPPER MIDWEST
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COMMERCIAL BIG PICTURE

- ◆ **2000 - No commercial scale farm in USA**
- ◆ **2017 Est. 30,000+ European acres & less than 1,000 in USA**
- ◆ **Native North American berries taste better, greater antioxidant variety, no meaningful levels of glycosides/proto-cyanides**
- ◆ **In 2017 the #1 commercial berry in MO with 350 acres**
- ◆ **Huge interest & unmet demand for native elderberry as a functional ingredient for a variety of foods & beverages, brews and wines**
- ◆ **MN: 800 total fruit acres today: growers expressed interest could add over 200 MN acres planted in elder & producing by 2025**
- ◆ **4000-6000lb./acre & \$2-\$8/lb. for high to low volume, certified organic?**
- ◆ **Elderberry the new focus of U of MN Forever Green Initiative in 2020**

TECHNICAL CHALLENGES

- ◆ **Hand harvest, limited mechanical crop handling, destemming, packing, scaling up, coop education & organizational development**
- ◆ **Reduction of labor inputs will increase competitiveness of native elder ingredients**
- ◆ **Early stage tech development: \$ needed to design & build, test & improve**
- ◆ **Much still unknown scientifically: determinant, indeterminate, primal cane fruiting, ripening, berry release, nutritional variation, cultivars**
- ◆ **MEC long term commercial success based on selling elder berry & flower ingredients in order to keep industry farmer owned and led**
- ◆ **Mid-stage infrastructure not in place to scale up as of 2020**
- ◆ **MEC Plan: create decentralized production hubs on farms with coordinated marketing & distribution to secure long term, volume contracts with buyers**
- ◆ **Project 22-50: planning grants, finance, production grants & ingredient process/specification development, secure supply agreements w/buyers**

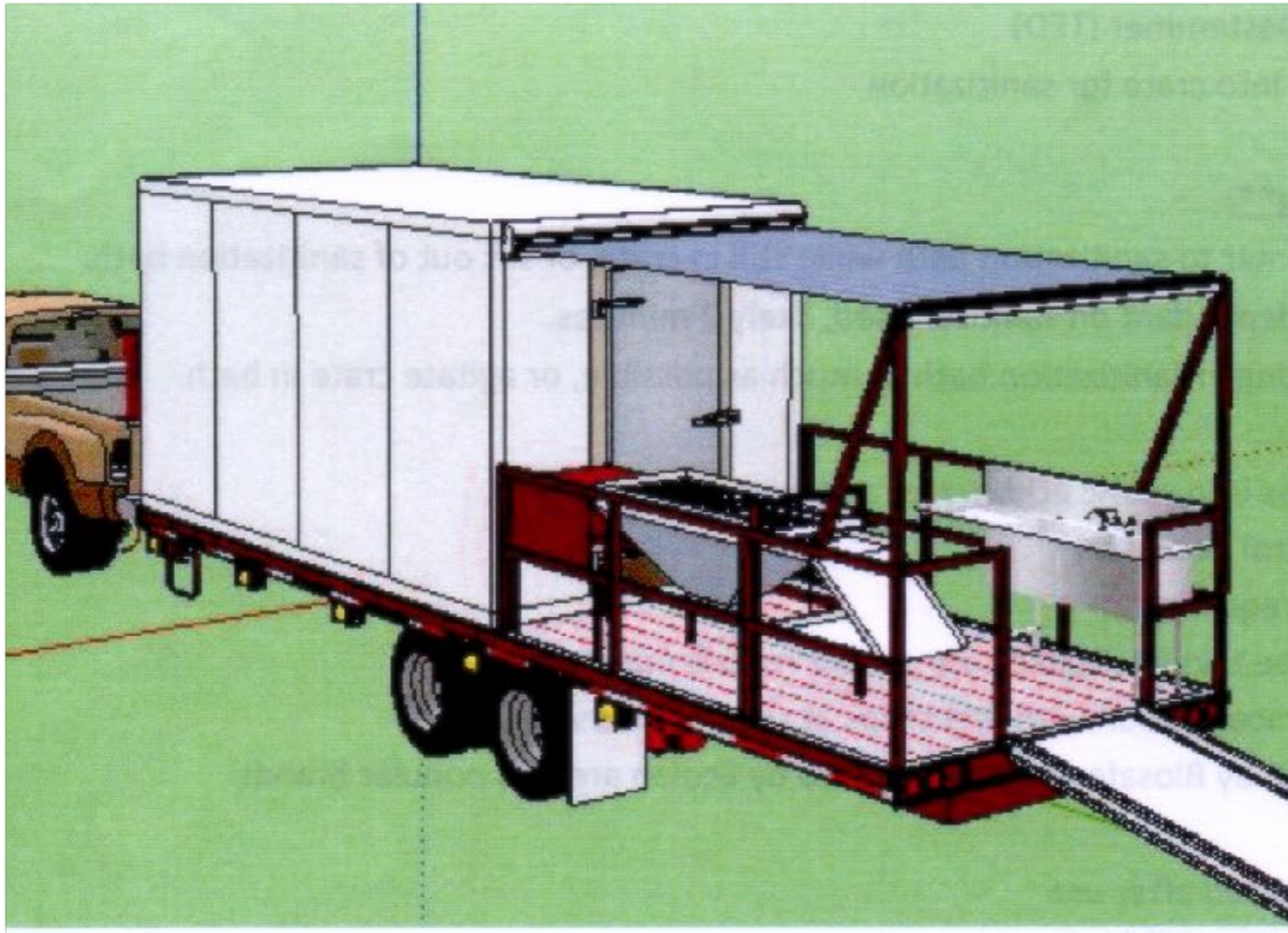
TERRY'S DESTEMMER

- Used with a triple wash stainless sink, often mounted on trailer
- Usually two men working destemmer, one washing and two or more picking to process 300-400 lb./hour
- Originally about \$9000, runs on 220, need a tested water source



Cost of Stainless Steel?

MOBILE FREEZER & PROCESSING



onFarm Storage Design
Paul Hannemann

WEST BRANCH ELDERBERRY

ORANGE CITY, IA

HUB - PROCESSING

FLOWS LEFT TO RIGHT STARTING WITH A MODIFIED GRAPE DESTEMMER THROUGH WASH STATION, FAN AND CONVEYOR FOR DRYING AND QUALITY CONTROL, THEN INTO A LINED BOX OR 4 GAL. FOOD GRADE PAIL.



2020 MARKET COMPONENTS

Potential: 22,500 acres of Harvested and Sold Elderberry

- ◆ **Fresh or frozen berries and flowers: packed & U-Pick**
- ◆ **Dried elderflowers: thousands of lb. imported**
- ◆ **Dried elderberries: estimated 200,000 lb. imported**
- ◆ **Lightly processed: juices, jams, jellies, and wines**
- ◆ **More processed: puree, bulk juice, syrup, nutraceutical inputs**
- ◆ **Highly processed berry: extracts, concentrates, powders**
- ◆ **Natural dyes made from elderberries for food or textiles**

NORTHERN COMMERCIAL SCALE:

RIVER HILLS HARVEST RETAIL PRODUCTS AND MEC INGREDIENTS

- ◆ **Mostly the same as for the rest of the Midwest**
- ◆ **Ranch preferred, Adams for vigorous reliability, variety**
- ◆ **Season timing is different: shorter & affects field work**
- ◆ **Plants are usually not dormant before snow, wet**
- ◆ **Hardwood cuttings taken in late March into April**
- ◆ **Nursery plants - starts/maxiplugs, ready in July**
- ◆ **Shortage of certified organic cuttings/“starts” in particular**
- ◆ **Using plants increases planting flexibility - more time**
 - **Field preparation, green manure, weed control potential**
 - **Can plant “starts” as late as early October > excellent growth in spring**
- ◆ **Variable deer and bird pressure > deer fencing probable**

SMALLER SCALE OPTIONS

LOCAL DIRECT

- ◆ **Sell fresh or frozen flowers & berries to wineries, food co-ops / consumers: packed pail or 5 lb. freezer bags**
- ◆ **Make and sell farm-based value added products at farmers markets, online and/or in retail stores**
- ◆ **Sell RHH packed frozen elderberries directly to MEC**
- ◆ **Growers partner in harvest and processing activities to share resources/expenses in selling to MEC hub**
- ◆ **MEC members can buy wholesale from the coop for their own production when their harvest is too small**
- ◆ **RHH packed pail: 4gal./25 lb. same day destemmed & sanitized, frozen berries with very few unripe berries, stems, etc.**

GEOGRAPHIC PERSPECTIVE

Decision Line: Alexandria, MN > US 8 ~ WI > Norway, MI

- ◆ Includes Michigan UP, northern WI, northern MN, ND, MT
- ◆ Large scale commercial production definitely more risky above this line
- ◆ Local Direct valued added products to sell locally-regionally / online
- ◆ Micro-environment critical north of this line, sometimes a bit south of it
- ◆ Choose cultivars suitable to shorter growing season
 - Adams, a dependable indeterminate - best berry/flower option
 - Ranch, an early determinate - favorite of large scale growers
 - Bob Gordon - best berry option, large & sweeter, less successful further north
 - Johns + local wild plants requiring hand pruning, not cut to the ground
 - Marge - determinate European *S. nigra*, vigorous, smaller cymes, larger berries, pruning, glycosides?
- ◆ Early spring exposure to sun - cold not a threat to early growth
- ◆ Hand pruning: more disease and pest issues (over-wintering like mites)
- ◆ Focus on flower harvest - some wild plants give abundant flowers, poor berry ripening

ADAMS (2)

**Natura Farms - 2014
Scandia, MN**

1 year old

8-10 feet annual growth

Indeterminate

Large flowers

Berries ripen by cyme cluster/finger

Cut to the ground

Grows back when damaged



ROW OF ADAMS FLOWERS

Natura Farms
Elderflower Power Day
6-15-2016

3 years old



RANCH

West Branch Elderberry

Orange City, IA

2016 - 3 years old

6-8 feet annual growth

Determinate

Abundant flowers

Berries ripen evenly

Cut to the ground

Tolerates dryness and clay soils better

Strongly prefers open field and full sun and suffers in a partial sun understory location



BOB GORDON

Terry Durham

Hartsburg, MO

6-8 feet annual growth

Determinate

Abundant flowers

Decumbent cyme

Larges sweet berries

Cut to the ground

Berries ripen evenly on primal cane only



JOHNS

Natura Farms - 2014

2 years old

8-10 feet annual growth

Determinate

Large flowers

Large berries ripen evenly

Requires pruning

(Paul Otten, over 6')



JOHNS

NATURA FARMS



Johns Flower



Original Stand of Johns
2012-rarely pruned

NATURAL HABITAT

- ◆ **Open or semi-open areas along habitat edges**
- ◆ **Seedlings compete poorly with more aggressive species**
- ◆ **Thrive best in full sun or partial shade**
- ◆ **Along streams in floodplains**
- ◆ **Openings in wooded canopy**
- ◆ **Disturbed sites**
- ◆ **Along roadsides - sometimes used as a windbreak**
- ◆ **All provide clues to farm land use planning**

PRODUCTIVE USE OF MARGINAL LAND

- ◆ **Many agroforestry / permaculture applications**
 - **Forest - field borders,**
 - **Windbreaks**
 - **Irregular islands or contours**
- ◆ **Likes full sun: produces with partial sun, not full shade**
- ◆ **Second soils: sunny slope, rocky, sandy**
- ◆ **Soil retention - erosion & run-off control**
- ◆ **Likes water, but not too much -**
- ◆ **Plant on berms in low wet areas, pond edges**

ECONOMICS MUST ALIGN WITH FARM

- ◆ **Each has a different environment, people, values, goals**
- ◆ **Can I grow elderberry profitably & sell my crop?**
- ◆ **MEC focused on two member strategy profiles**
 - **Local Direct & Commercial scale producers**
 - **Delinked Class A and C share requirement**
 - **Inclusive, flexible, scalable economic support to both**
 - **Commercial requires regional operations hubs**
- ◆ **Two economic options for three grower strategies**
 - **Smaller scale Local Direct own products - Class A shares**
 - **Small growers partner / aggregate to commercial scale**
 - **Commercial scale production ~ number of Class C shares**

MEC-RHH GROWER DATABASE

- ◆ **Upper Midwest = Broadly north of Chicago**
- ◆ **Upper Midwest Network - 24 member farms - 40+ people**
 - **Iowa - 3**
 - **West Branch Elderberry (existing hub, Orange City)**
 - **Minnesota - 8**
 - **Main Street Project (developing hub, Northfield)**
 - **Veterans Farm Initiative (future hub, Montrose)**
 - **Wisconsin - 8**
 - **Savannah Institute - agroforestry, 50 to 200 acres (future hub, Madison)**
 - **CA, MO, ND, SD, TN, VA members & farms in other states interested**
- ◆ **River Hills Harvest, Central-Southern Midwest - 72**
- ◆ **Many resources @ midwest-elderberry.coop: Events page for workshops**

MARGE

Sambucus nigra -
European Adapted

MEC Minneapolis, 2018

3 years old

First & last to leaf

Determinate

Requires pruning

Smaller flowers/cymes

Much larger, squarish berries

Ripens more evenly

Glycosides?



MARGE

Sambucus nigra -
European Adapted

Much Larger Berries
(unripe) 2018



MARGE

Sambucus nigra - European Adapted



March 23, 2019



June 10, 2019

WILD CULTIVARS PRUNED FOR FLOWERS

Also berries.



Florabunda

6-25-18

“FLORABUNDA”

MEC Minneapolis, 2018
(from Minnehaha Creek)

3 years old

Determinate

Requires pruning

Massive, fragrant flowers

Berries do not ripen very evenly



FLORABUNDA

HAND-PRUNED, MINNEAPOLIS



March 23, 2019



June 10, 2019

“TRIFECTA”

MEC Minneapolis, 8-28-18
(from Minnehaha Creek)

3 years old

Triple head on one cane

Determinate

Requires pruning

Massive, fragrant flowers

Berries ripen more evenly

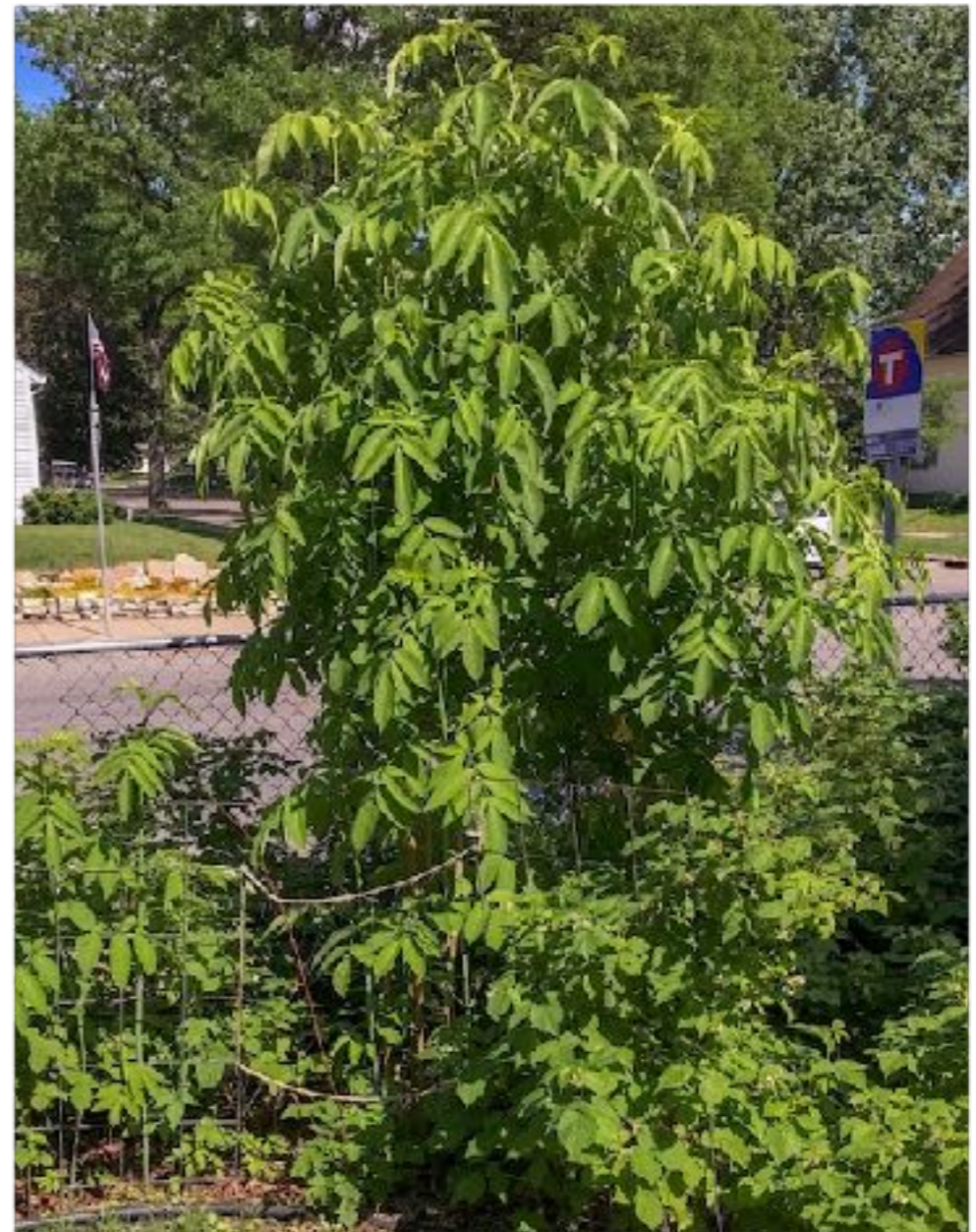


TRIFECTA

HAND-PRUNED, MINNEAPOLIS



March 23, 2019



June 10, 2019

TRIFECTA



**Uneven Ripening > Wait, lose some berries
8-15-2018**

“ANOKA”

MEC Minneapolis, 2017
(from Anoka County)

4 years old

Determinate

Cut to ground

Fragrant flowers

Berries ripen evenly

“Is it a northern version of Ranch?”



ANOKA

MEC Minneapolis, August 8, 2018

Primal Canes

one year growth

Is the berry set largely affected by wind and thus needs more neighboring flowers?

Not a question of needing another cultivar to pollinate but one of needing other elder flowers of any kind blooming at the same time.



ANOKA

Vigorous Spreader



Cut to the Ground March 23, 2019



May 17, 2019

COMMON PLANT ISSUES



Elderberry Rust
Eliminate Sedges from Field



Winter Freeze Damage
(sudden, early deep freeze)

COMMON PEST PROBLEMS



Cane Borers



Eriophyid Mites

COMMON PEST PROBLEMS



Sawflies on Elder



**Spotted Wing Drosophila
(SWD)**

NORTHERN PEST PROBLEM



4 Lined Plant Bug

ANTONIO DIMAGGIO - HERBALIST

Sacred Blossom Farm, Gilmanton, WI



Field testing Marge, Florabunda, Trifecta and Anoka elderberry cultivars



BLUE FRUIT FARM OBSERVATIONS

Winona, MN

Jim Riddle & Joyce Ford - 2019 MOSES Farmer of the Year

- ◆ **Organic Researchers and certified organic activists**
- ◆ **Early MEC members selling Local Direct**
 - **Fresh/frozen elderberries to Birchwood Cafe and consumers (5lb. min)**
 - **Make and sell their own jams, jellies, steamed juice mixes**
- ◆ **5 acres fully deer-fenced and bird-netted**
- ◆ **Variety of fruits:** blueberry, plum, aronia, serviceberry, elderberry, honeyberry, and black currants - Titania most productive and reliable
- ◆ **York, Johns, Adams, Bob Gordon, Wyldewood, Ranch and Nova**
- ◆ **Some issues with powdery mildew - only known instance -**
 - **manage by pruning, cane removal, and sprays of stylet oil & diluted (1:10) milk/water solution**
- ◆ **See bluefruitfarm.com for farming practices, pictures, “shop” button**

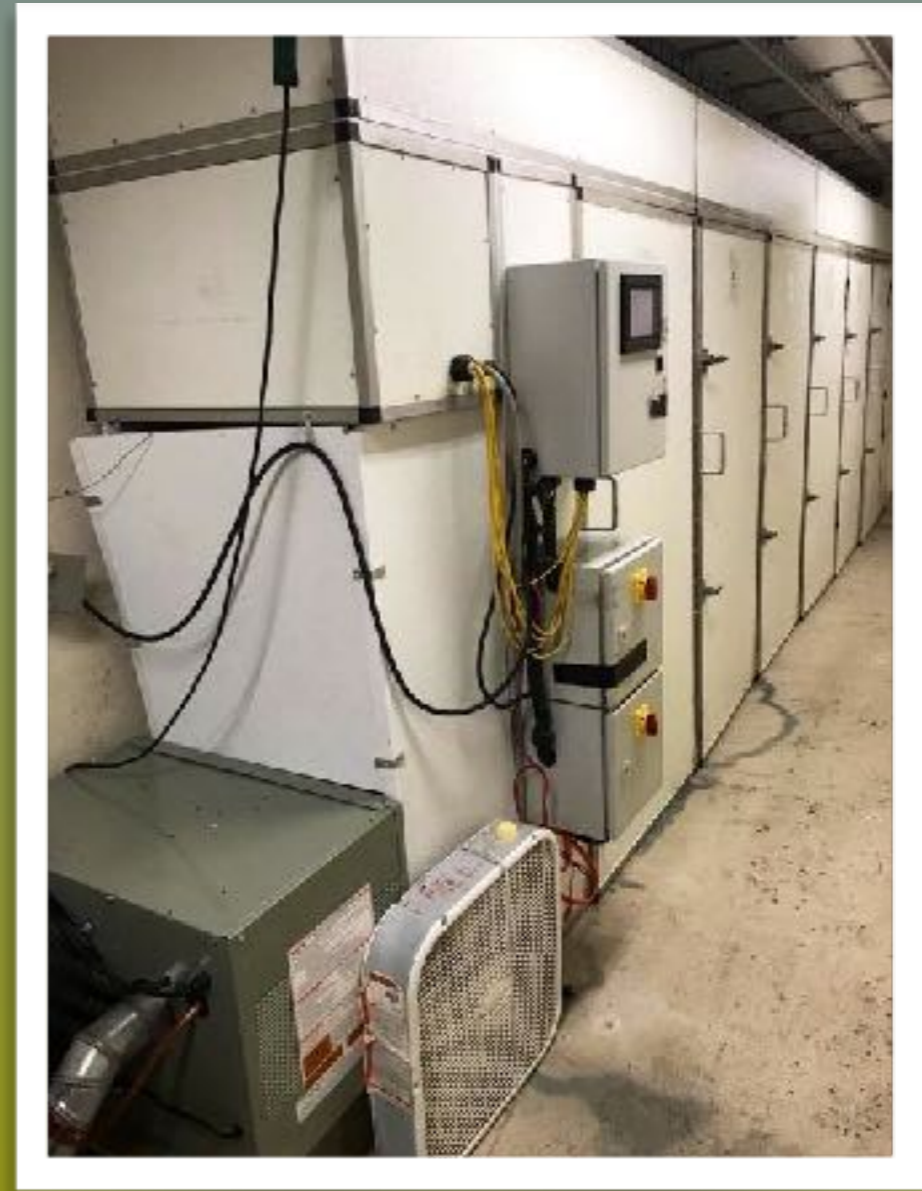
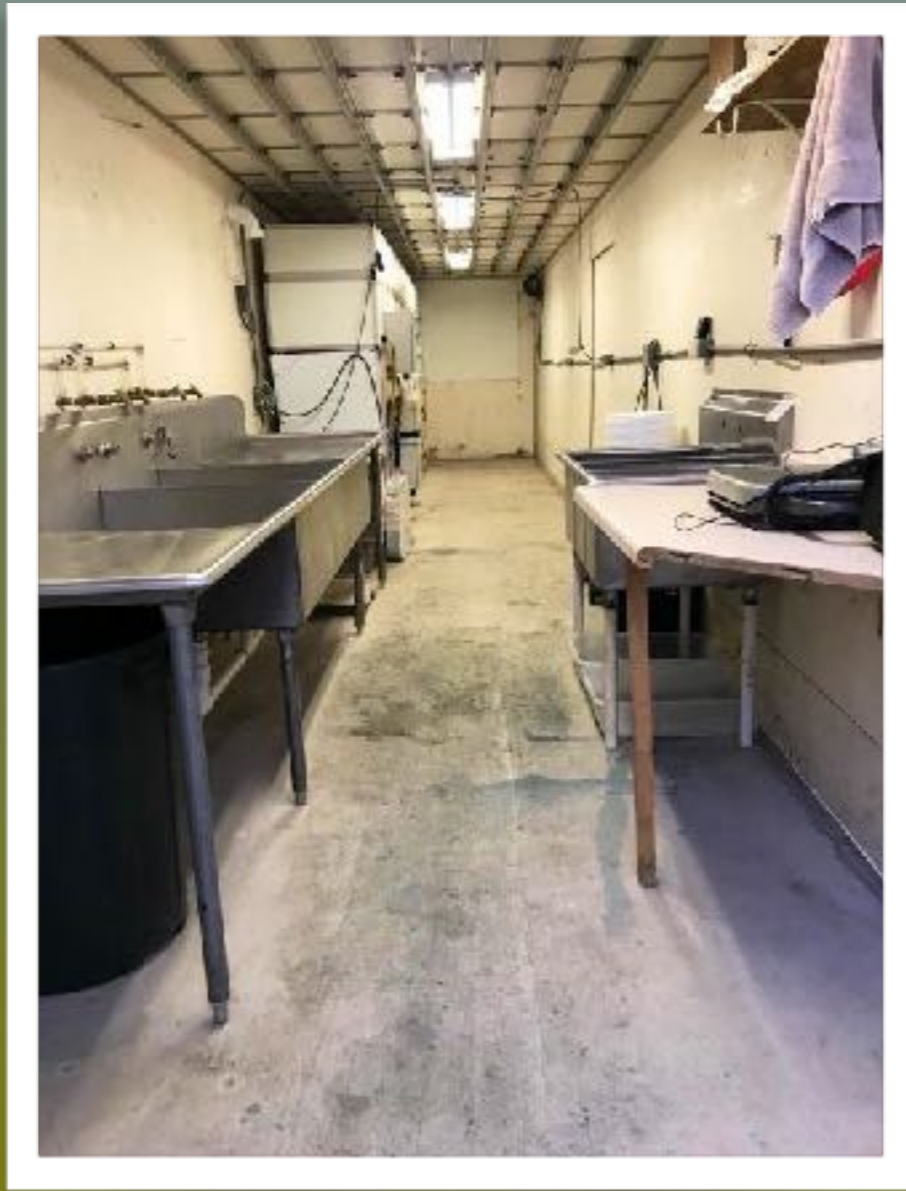
RIVER HILLS HARVEST

(THE ORIGINAL HUB)



WEST BRANCH ELDERBERRY

ORANGE CITY, IA HUB



COMMERCIAL KITCHEN IN TRAILER

GRANTS OFTEN REQUIRE GROWER PARTICIPATION

MEC supports, co-applies, adds other resources

Meet Tony Wells

**Regeneration Farms
(Near Faribault, MN)**

- ◆ Produced his first dried flowers last year
- ◆ Expanding his commercial kitchen: loan & grant
- ◆ Adding acres of elderberry: Wyldehood, Ranch, Bob Gordon, Johns



NEXT STEPS

2,250 certified organic acres of commercial elderberry needed by 2025 to meet present indicated demand

- ◆ **Increase the number of MEC hubs - manage quality of crop and access to technology > lower harvest costs**
- ◆ **Expand relationships with national brands and bulk fruit brokers, local and regional wineries, breweries, distilleries**
- ◆ **Support grower supply directly to local markets of flowers and berries fresh/frozen, or as valued added products**
- ◆ **Develop certified organic production and processing**
- ◆ **Expand University Agroforestry participation in each state**
- ◆ **Increase horticultural and ingredient production research**