



2015 Aronia Berry Services Field Day

Aronia Plant Establishment –

The Formative First Three Years

Presented By Mike Gooder

With Color Commentary By Dean Mangrich



About PLANTPEDDLER

- Since 1890, growing in Northeast Iowa! Purchased 1980.
- 35 years of growth from 12,000 sq.ft. to 350,000 sq. ft. of covered production & support facilities.
- Four divisions servicing vertical market segments: CGR, PPW, PPYP & SCF.
- Staff of 50 year-round with peak of 90
- Serving all 50 states, all Canadian provinces.
- Import & export to over 20 countries annually.
- Researching, selecting & producing innovative genetics that perform for gardeners in the Midwest.





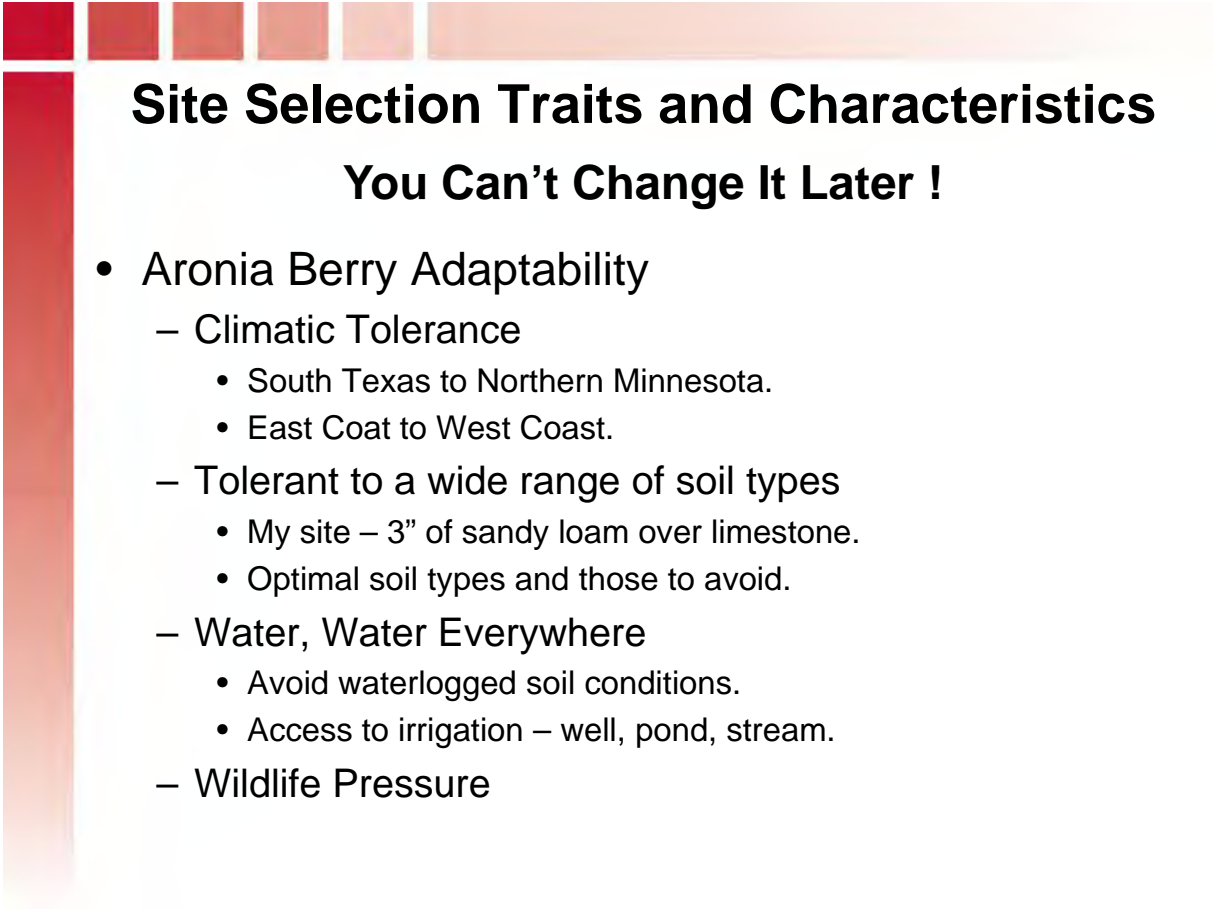
Sustainably grown produce picked fresh just for you. *Know where your food comes from.*



ARONIA ESTABLISHMENT TOPICS

Discussion Points And Thoughts

- Site Selection – Traits and Characteristics.
- Pre-Plant Field Preparation
- Planting and Planting Options
- Nutrition
- Weed Management
- Plant Health



Site Selection Traits and Characteristics

You Can't Change It Later !

- Aronia Berry Adaptability
 - Climatic Tolerance
 - South Texas to Northern Minnesota.
 - East Coast to West Coast.
 - Tolerant to a wide range of soil types
 - My site – 3” of sandy loam over limestone.
 - Optimal soil types and those to avoid.
 - Water, Water Everywhere
 - Avoid waterlogged soil conditions.
 - Access to irrigation – well, pond, stream.
 - Wildlife Pressure



Pre-Plant Field Preparation

Starting Clean

- Field Layout
 - Population per acre -1000 to 1500 plants per acre.
 - Optimal 1200 per acre, 12 row spacing, 30” in row
 - Headland areas for harvest equipment.
 - Irrigation layout and access to water.
- Site Determined Establishment Options
 - Clean field versus established sod.
 - Sod beneficial if desirable species and free of weeds (spray?).
 - Field history - Previous herbicide use on crop acres.
 - Advantages and disadvantages.

Pre-Plant Field Preparation

Starting Clean

- Starting Clean Options: Herbicide Sprays
 - Glyphosate Tank Mixes.
 - Broadens target range to take out resistant weeds.
 - Can include Select, Poast, 2-4D, Sharpen/Treevix, other.
 - Multiple applications to insure 100% kill.
 - Can be banded (36" to 48") depending on establishment
- Pre-Plant Cultivation
 - No till into sod. Planter requirements.
 - Banded tillage/rotovation.
 - Traditional tillage.
- Cover Crops
 - Grass versus Legume.

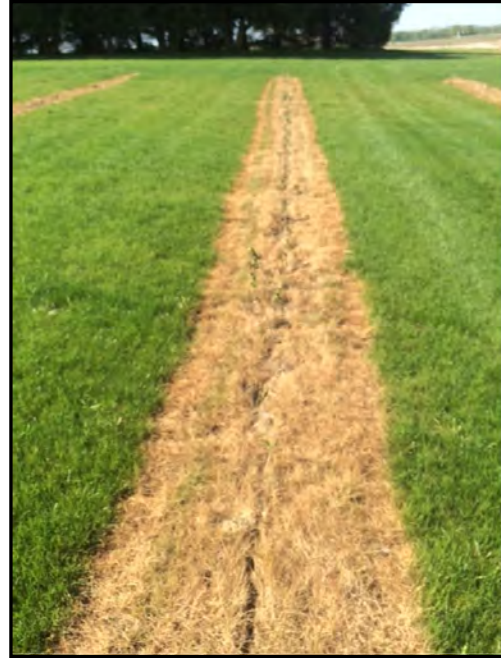
Pre-Plant Field Preparation

Starting Clean



Pre-Plant Field Preparation

Starting Clean



Planting and Planting Options

Timing Your Planting

- Optimal Planting Times
 - Fall planting
 - More forgiving, cooling soils, no weed pressure
 - Utilizes Fall though Spring rain to irrigate.
 - Can plant up to frozen ground with high success.
 - Root system remain active in through-out the period.
 - Potential for highest plant survival.
 - Can accelerate fruit production by one season.
 - Spring planting
 - Ideally earlier the better. Fall field preparation.
 - Negative impact of warming soils.
 - Management of weed pressure.
 - Irrigation improves survival.

Planting and Planting Options

Practices for High Percentage Establishment

- Planting Equipment Options
 - Hand planting
 - Small areas, replant, slow, labor intensive.
 - Need we say more.
 - Tree planters
 - Effective in sod, heavy soils, low input plantings.
 - Difficult to control planting depth and population.
 - Plug planters
 - High degree of accuracy in plant placement.
 - Optimal plant spacing.
 - Options to water-in at planting.
 - Options for ground cloth and plasticulture.

Planting and Planting Options

Practices for High Percentage Establishment



Planting and Planting Options

Practices for High Percentage Establishment



Planting and Planting Options

Practices for High Percentage Establishment

- **Liner Plant Vigor and Characteristics**
 - You are buying a root system.
 - Mature and active (white roots) with healthy root tips, fine hairs.
 - No visible decay, odor, disease or pests.
 - Avoid over-mature liners with root circling.
 - **Vegetative Tissue**
 - Active soft tissue growth or recent growth.
 - Non-fruiting wood. Little to no flower buds or fruit.
 - Single central leader is desirable for mechanical transplant
 - **Healthy Plant**
 - Free of pests and disease.
 - Good foliage color (unless dormant).

Planting and Planting Options

Practices for High Percentage Establishment



Planting and Planting Options

Practices for High Percentage Establishment



Planting and Planting Options

Practices for High Percentage Establishment



Planting and Planting Options

Practices for High Percentage Establishment



Building Plant Nutrition

Feeding to Support Vigor and Health

- Fertility management starts with soil and tissue tests.
 - Iowa State University, commercial labs, others
- pH management
- Determining proper nutritional levels for soil type
- Timing of application – Spring vs. Fall
 - Value of post harvest application.
- Type and method of application – Foliar, dry, liquid
- Macro nutrient management.
 - Risk of over application of N, P, K.
- Micro nutrient management.
 - Critical role in quality high brix fruit and plant health

Weed Management

Critical Step In Crop Establishment



Weed Management

Weeds Down On The Farm (SCF)

Stone Creek Farms Weed Pressure Inventory 2015

Broadleaf Weeds	Ann, Bi, Pere	Infestn Level 1-5	Broadleaf Weeds	Ann, Bi, Pere	Infestn Level 1-5
Alfalfa	P	1	Lambsquarter	A	2
Bindweed (vine)		2	Mallow, Venice	B?	2
Burnweed, American		1	Morning Glory, Wild		2
Clover, Red	P	1	Nightshade, Black	A	1
Clover, Sweet	P	2	Parsnip, Poison	B	2
Clover, Yellow Creeping (Trifolium)	P	4	Pigweed/Waterhemp	A	1
Cocklebur, Spiny (Xanthium spinosum)	A	3	Ragweed, Common	A	5
Dandelion	B	1	Smartweed	A	2
Ground Cherry, Clammy (Physalis heterophylla)	P	5	Thistle, Bull	B	1
Ground Cherry, Smooth (Physalis subglabrata)	P	3	Thistle, Canadian	B	2
Horseweed	B?	2	Thistle, Musk	B	1
Knotweed	A	2			

Weed Management

Critical Step In Crop Establishment

- GAP and Chemical Controls
 - The law and Aronia
 - This discussion today focuses on the establishment “non-fruiting” years.
 - Under GAP and EPA only labeled products can be used on food crops.
 - We are not recommending or endorsing the use of any of these products. Only exploring chemistry options.
 - Under special use “IR-4” products labeled for use on “bushberry crops are legal for use on Aronia.
 - Search out these products with horticultural labels vs. “commodity crop labels”. Often same active ingredient (A.I.).
 - Use Bush Crops (Blueberries) as “Represented Crop”

Weed Management

IR-4 Specialty Crop Labels

- Since 1963, the IR-4 Project has been the major resource for supplying pest management tools for specialty crop growers by developing research data to support new EPA tolerances and labeled product uses.
- Allows for pesticide manufactures and specialty label companies to bring advanced tools to growers of unique crops.



Weed Management

IR-4 Specialty Crop Labels

13-07. BERRY AND SMALL FRUIT

Representative Commodities: Any one blackberry or any one raspberry, highbush blueberry, elderberry or mulberry, grape, fuzzy kiwifruit and strawberry.

Commodities: Amur river grape; **aronia berry**; bayberry; bearberry; bilberry; blackberry (including Andean blackberry, arctic blackberry, bingleberry, black satin berry, boysenberry, brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyenne blackberry, common blackberry, coryberry, darrowberry, dewberry, Dirksen thornless berry, evergreen blackberry, Himalayaberry, hullberry, lavacaberry, loganberry, lowberry, Lucretiaberry, mammoth blackberry, marionberry, mora, mures deronce, nectarberry, Northern dewberry, olallieberry, Orgeon evergreen berry, phenomenalberry, rangeberry, ravenberry, rossberry, Shawnee blackberry, Southern dewberry, tayberry, youngberry, zarzamora, and cultivars, varieties and/or hybrids of these); blueberry, highbush; blueberry, lowbush; buffalo currant; buffaloberry; che; Chilean guava; chokecherry; cloudberry; cranberry; cranberry, highbush; currant, black; currant, red; elderberry; European barberry; gooseberry; grape; honeysuckle, edible; huckleberry; jostaberry; Juneberry (Saskatoon berry); kiwifruit, fuzzy; kiwifruit, hardy; lingonberry; maypop; mountain pepper berries; mulberry; muntries; native currant; partridgeberry; phalsa; pincherry; raspberry, black and red; riberry; salal; schisandra berry; sea buckthorn; serviceberry; strawberry; wild raspberry; cultivars, varieties, and/or hybrids of these.

Weed Management

IR-4 Specialty Crop Labels

- Our crop group is further defined in 13-07B

13-07B. Bushberry subgroup

Representative Commodities: Blueberry, highbush
Commodities: **Aronia berry**; blueberry, highbush; blueberry, lowbush; buffalo currant; Chilean guava; cranberry, highbush; currant, black; currant, red; elderberry; European barberry; gooseberry; honeysuckle, edible; huckleberry; jostaberry; Juneberry (Saskatoon berry); lingonberry; native currant; salal; sea buckthorn; cultivars, varieties, and/or hybrids of these.



Weed Management

Critical Step In Crop Establishment

- Chemical Controls
 - Preemergent herbicides – Labeled for control (Blueberries)
 - Dichlobenil (Casoron 4 G and 1.4 CS)
 - Diuron (Karmex and others)
 - Flumioxazin (Chateau)
 - Hexazinone (Velpar 80 DF)
 - Mesotrione (Callisto)
 - Napropamide (Devrinol)
 - Norflurazon (Solicam 80 WDG)
 - Oryzalin (Surflan)
 - Pronamide (Kerb 50 W)
 - Simazine (Princep)
 - Terbacil (Sinbar 80 WP)



Weed Management

Critical Step In Crop Establishment

- Chemical Controls -Preemergent herbicides (Blueberries)
 - Non Fruit Bearing Crops – “Pre-Tank Mix”:
 - XL (Amaze) 2 GR benefin / oryzalin
 - Broadstar 0.25 GR flumioxazin
 - Freehand 1.75 GR dimethenamid / pendimethalin
 - Snapshot 2.5 GR isoxaben / trifluralin
 - Showcase 2.5 GR isoxaben / trifluralin /oxyfluorfen
 - Jewel 3.25 GR oxadiazon / pendimethalin
 - RegalStar 1.2 GR oxadiazon / prodiamine
 - OH2 3 GR oxyfluorfen / pendimethalin
 - Rout 3 GR oxyfluorfen / oryzalin
 - Regal O-O 3 GR oxyfluorfen / oxadiazon
 - Biathlon 2.75 GR oxyfluorfen / prodiamine



Weed Management

Critical Step In Crop Establishment

- Chemical Controls –Post Emergent herbicides (Blueberries)
 - Clethodim (Select 2EC)
 - Glufosinate (Rely 1L)
 - Glyphosate (Roundup and many others)
 - Halosulfuron (Sanda 75 DF)
 - Paraquat (Gramoxone Inteon and Fire storm)
 - Sethoxydim (Poast 1.5 EC)
 - Basagran T/O (bentazon) - Nonbearing
 - Fusilade DX (fluazifop) – Nonbearing



Plant Health

Keeping Pests and Disease at Bay

- Scouting
 - Educate yourself on pests, diseases, weeds...
 - Scout your field on a minimum of a weekly basis.
 - Be observant. See everything and question everything.
- Pest pressure
 - Japanese Beetle
 - Spotted Wing Drosophila
 - Spider mites, thrips, aphids, deer, rodents, and more
- Fungus among us
 - Powdery Mildew
 - Leaf spot



In Closing...

Thank you for attending today and participating in this “Aronia Berry Establishment” discussion.

Everyone at Plantpeddler appreciates your business and partnership in growing.

We proudly look forward to delivering our very best to our Aronia partner growers. It is with great pride that we help bring this exciting crop opportunity to your world.

You are cordially invited to visit Plantpeddler, and we extend the special invitation to come to our Variety Day event August 5, 2016.

Feel free to contact us with questions and comments at (800) 827-1654, email mikeg@plantpeddler.com.