Gathering Summary: Gardening in NW Montana

by Julian Cunningham,
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Summary by Catherine Haug

Introduction

Julian ran his Swallow Crest Farm as a CSA (Community Supported Agriculture) for 14 years, but now is changing the way he markets. As a CSA, he started with 5 subscribing families, and had 160 members the last 4 years. This format pays the bills, but his children are teens now, with new needs, and he wants to develop the art, beauty and pleasure of gardening at his farm.

Despite the changes in format, several features will continue:

- Apprenticeship program;
- Pre-arranged sales with drop off in Bigfork. Orders start 15th of May;
- Presence at Kalispell Farmers Market and perhaps also Whitefish.

See also Julian's handout: Produce distribution timelines for 2010 season

Climate/Weather

In the Flathead, we have about 90 - 130 days of frost free zone. We can see frost as late as July 13 and as early as August 27, so gardening here can certainly be a challenge.

Soil

Julian showed a mix of his soil and water in a jar. After settling, it has sand at the bottom and silt at the top.

Soil enhancement

He sited his garden in the SW corner of his field, and uses both cover crops and compost to enrich his soil. The manure, bedding straw, etc. for his chickens all go into his compost, along with hay. A highlight of his presentation, his 4-year crop rotation method is used to build up his soil while providing produce for his family and business. He devotes:

- 1/2 his garden space to a **cover crop** (a mix of cereal rye or barley and Austrian pea, followed by buckwheat);
- ¼ to **heavy feeders** (nitrogen consumers), which include leafy greens, broccoli, cabbage, cauliflower, corn, cucumbers and squashes. All his compost goes to this portion of his garden.
- ¼ to **light feeders**, which include carrots, beets, onions. None of his compost is used in this portion of his garden.

Cover Crop:

- Julian plants a mix of annual cereal rye with Austrian winter pea in late fall & early spring (mixed in a broadcast bag for sowing).
- Rye is effective at controlling weeds, by growing thickly to smother them, and by its allelopathic ability (emits substance that prevents the thriving of competing plants).
- Pea is nitrogen fixing.
- When this mix is about knee high, it is ready to plow (disced down). This is before the rye heads out, when the pea is at peak bloom; both are ready to be plowed in.
- Then he sows buckwheat to bring up phosphorus, attract pollinators, and add organic matter to the soil. This crop blooms in 45 days, mid-September in his cycle, which is killing-frost time. He discs this down and leaves it on/in the soil for protection during the winter.

Crop Rotation Cycle, by Year

(see sketch, by C. Haug from Julian's sketch, right and below)

1. Cover crop cycle (above) in ½ the garden, with heavy & light feeders each taking up ¼ of the garden.
2. Cover crop cycle is repeated in same section, but heavy & light feeders switch places.
3. Cover crop cycle moves to former heavy/light feeders section, which move to former cover crop location.
4. Like year 2, the heavy & light feeders switch places.

Compost

He cleans the area in the spring. Correct amount of moisture should be like a wrung-out sponge. Then covers with tarp when cooking; will cook at 165° - 168° F. When temperature starts to drop, he turns the pile 4 - 5 times. Compost is not 'safe' until it has gone through the cook cycle.

The ratio of carbon (woody debris) to nitrogen (food scraps, grass clippings and leaves) should be about 30:1. Bacteria consume nitrogen to digest the carbon.

Discussion: Sally J. shared highlights of her compost method based on simple Rodale method. See her ESP article Composting Kitchen Scraps and Yard Waste for details.

Q: Do we need lime here?

A: Depends upon soil pH. Lime is alkalizing (raises pH), vs. sulfur which is acidifying (lowers pH).

Season Extenders

Julian uses Hoophouses, high tunnels, and low tunnels.

Hoophouses

His are 12' by 6', made with 20' lengths of PVC pipe; this works pretty well.

He uses these for early greens (spinach, salad greens, cilantro, green onion), then in mid-May for nightshades (potatoes, peppers).

Q: Do you direct-sow in a hoophouse?

A. Julian puts up his hoophouses on March 1, and plants lettuce, spinach, etc. directly in the ground. Also onion sets. These should be ready May 15. This year he had to move off 16" of snow in order to put up the hoophouses this year. NOTE: his hoophouses move with the crop rotation.

Low Tunnels

These he uses a lot, such as for broccoli and other frost-hardy plants. [see his Produce distribution Timelines handout in the frost hardiness column:

- 'H' (Hardy) needs cover when early starts; protect from frost, wind, insects. He prefers Agribon/Remay cloth over plastic, but not the lightest weight Agribon. AG70 provides 8° of frost protection (8° below freezing).
- 'VH' (very hardy)

High Tunnels

These are high hoophouses, but a more permanent structure. He makes his own using a conduit bender (he can loan out his bender). He can plant on Feb 15, to be ready the 3rd-4th week of April.

Irrigation

Julian uses Drip Works system. T-Tape comes on big rolls (7500 feet/roll), but smaller quantities can also be purchased. This is a flat tube with seam on the top. Holes in seam emit water slowly. Lay this right along the base of plants. Works better than soaker hoses.

Make zones; note that slopes affect the lines. Set water-driven timer to water different zones in sequence.

Lay on ground or bury. Can secure with ground staples every 25 feet, until it no longer bends out of line. Use a bib fitting to connect feeder supply line to watering lines. These fittings are easy to use. At the other end, use filter and pressure regulator.

Pull up all lines before winter (November). He uses 50' lengths which he gathers up then stores lengthwise in his barn.

Starting Soil Mix

Julian uses an organic soil mix made from peat bog at Lake Mary Ronan (Peaco Peat Moss & Soils, Big Arm); you can purchase at CHS Farm Store in Kalispell. Peaco makes 2 products Julian recommends:

- peat & perlite
- basic organic potting soil

For greens and tomato starts, Julian makes up the following mix:

- 4 parts peat (from Peaco)
- 1 part soil for consistency
- 1 part perlite (¼" size) for aeration
- 1 part compost (pushed through a sieve) provides nutrients and buffers tendency of dampening off

For curcubits (squash, cucumbers), add to the above

- ½ part sand, to provide additional aeration and water drainage

Pests: Deer, Insects, and Disease

Deer

Julian recommends either one 8-foot sturdy fence, or two 5-foot fences, set 3-feet apart. A suggestion from the audience is to use deer poppers with peanut butter and an electric fence. Another suggestion is to use a homemade habañera pepper spray (see The EssentiaList: Bill Clanton In the Garden.

Other Animal Pests

- For all animal pests, it helps to provide a beneficial habitat for good bugs (like ladybugs, lacewings) and birds (like chickens, bluebirds, robins, swallows).

- Diamondback cutworm is a moth larvae. Watch for them, then "Snap 'em up" to get rid of them.
- Wireworm (click beetle larvae) is a reddish brown centipede, hard that attacks all roots. Bait & distract with a cut potato; they eat it instead of your plants.
- Slugs. Diatomaceous earth (see The EssentiaList: Using Diatomaceous Earth), beer traps or yeast water. See also The EssentiaList: Natural Pest Control in the Garden.
- Root maggots. Work wood ash into soil (best from hardwood); plant as early as possible.
- Flea beetles. They don't like row covers.
- Aphids; this pest likes bok choy and broccoli in late season. Add lady bugs, lacewings to your garden. Spray plants with soap spray then was off with cold water (daily).
- Grasshoppers; these don't like overhead water. Semaspore infects them - spray on (see Planet Natural for more). Cut high grass down around the garden. Chickens, bluebirds and robins eat them (also eat mosquitos).
- Blister beetles [sorry, I didn't get any notes for this pest].

Plant Pests

- Quack grass. These roots are superficial; spring-tooth cultivating tool raises it up, then the soil burns out the roots. Or cover with black plastic, or dig out with a pitch fork.

Crops

Refer to Julian's chart: Produce distribution timelines for 2010 season for more detail

Seeds

Julian can share good varieties of different crops; you may call him for this info (756-0462). But some seed companies also provide good info. He recommends:

- Johnny's Selected Seeds (www.johnnyseeds.com)
- Fedco of Maine (www.fedcoseeds.com)
- Seeds of Change (www.seedsofchange.com) NOTE: pricey

Timing

Refer to Julian's chart: Produce Distribution Timelines for sowing date, transplant date, and frost hardiness of all the crops he grows here. Note that some crops have multiple plantings, such as broccoli, which is every 10 days until June 20.

Seed Saving

We were running out of time, so Julian was unable to talk about how to save seeds, but if you are interested in saving seeds, he offers the following recommendations:

- plant heirlooms (not hybrids, for most)
- pea and bean work well for saving
- curcubits (squash, cucs, melons) are not good for seed saving because they cross-pollinate
- some onions work well
- lettuce
- Julian prefers hybrids in the cabbage family rather than saving seeds
- Also he cautions to be aware that Monsanto owns patent on Early Girl Tomato, so can no longer save those seeds.

For more info on this topic, see the following (they do great work and are good sources):

- Seed Savers Exchange (www.seedsavers.org)
- Baker Creek Heirloom Seeds (rareseeds.com)
- Safe Seed Alliance (I couldn't find a link for this name, but I did find Organic Seed Alliance at www.seedalliance.org; see also their related seed sources page: www.seedalliance.org/Seed_Companies_Selling_Organic_Seed

Tips

Julian follows corn with potatoes; the corn doesn't give the potatoes scab.

More Audience Q & A's

Q: How does a worm bin work? [Vermi-composting]

Discussion: Bring it inside in winter. Usually red worms (not native) so do not release them. Julian used to have them but no longer.

Q: How long will perennials like raspberries thrive here?

A: Raspberries are 15-year crops here.

Q: Do you pull up the roots after harvest?

A: Julian likes to leave as much residue where it was grown, discing it in. There are a few exceptions: can't do it where will plant carrots because they are too delicate. For smaller gardens (to small for discing), he would chop up the debris then turn it.

Q: How do you use compost, and how much?

A: For brassicas, he uses a post hole digger to make 66 holes in a 100 foot bed, then adds a certain size shovel full of compost. For corn, he broadcasts compost over the top of the soil for about ½"/square foot coverage.

Resources & References

Julian's Resources

- Julian's handout: Produce distribution timelines for 2010 season
- Drip Works (Irrigation): www.dripworksusa.com; Drip Works T-Tape: www.dripworksusa.com/store/ttape.php?lnk=left
- Growers Supply: www.growerssupply.com/farm/supplies/home; greenhouse plastic
- Steubers
- Peaceful Valley Farm Supply: www.groworganic.com for odds & ends
- Encyclopedia of Organic Gardening (Rodale) (see Amazon for details)
- Peaco Peat Moss & Soils, Big Arm MT: (406) 849-5729 - 38261 Us Highway 93, Big Arm, MT
- Johnny's Selected Seeds (www.johnnyseeds.com)
- Fedco of Maine (www.fedcoseeds.com)
- Seeds of Change (www.seedsofchange.com)
- Seed Savers Exchange (www.seedsavers.org)
- Baker Creek Heirloom Seeds (rareseeds.com)
- Organic Seed Alliance (www.seedalliance.org); see also their related seed sources page: www.seedalliance.org/Seed_Companies_Selling_Organic_Seed

ESP Articles

1. Gathering Summary: Garden Season Extenders, by Don Bates, March 23, 2011 and Season Extenders: Cold Frames & HotBeds (From SavvyGardener) (printable pdf)
2. The EssentiaList: Garden Hoops from Natural Materials
3. The EssentiaList: Sequential Planting Through the Seasons
4. The EssentiaList articles on Compost
5. The EssentiaList: Composting Kitchen and Yard Scraps, by Sally Janover (see also printable pdf version of this article: Composting Kitchen Scraps and Yard Waste)
6. The EssentiaList: Growing Guides for Montana Gardens
7. The EssentiaList: Bill Clanton In the Garden
8. The EssentiaList: Natural Pest Control in the Garden
9. The EssentiaList: Using Diatomaceous Earth

Other websites

10. NPR article: Old-Time Methods Yield Spring Greens All Winter, by Nancy Shute (www.npr.org/2011/03/21/134664834/old-time-methods-yield-spring-greens-all-winter)
11. National Climactic Data Center: Freeze / Frost Occurrence Data
12. MontGuides (MT Extension): Can I Grow That Here? and Successful Garden Guide
13. Planet Natural: www.planetnatural.com, and for semaspore: www.planetnatural.com/site/semaspore-grasshopper-bait.html