

Small Farm Case Study – Wanna B Farm

Farm Description – Wanna B Farm is a 10-acre farm that has 5 acres of open land and a small house. The farmers rent the land and house for \$10,000/year. They grow certified organic vegetables on 0.5 acres at a given time, but have a total of 2 acres of cultivated suitable for vegetables. During some seasonal periods, there is an overlap of crops. For example, in the spring, the summer plots are planted while they are still harvesting the cool season crops. They also grow about ¼ acre of herbs which are a combination of perennials and annuals. All crops are directly marketed to consumers; consequently, they grow a mix of vegetables and specialize in unusual, heirloom, and new cultivars. Their primary crops in the summer are squash, tomatoes, beans, peppers, and culinary herbs such as basil oregano and thyme. In the fall and spring, they grow kale, lettuce, cabbage, onions, potatoes, spinach, and carrots. Some of the herbs are dried and sold with other seasonal crops to spread out the herb crop income.

Cover Crops and Rotations—The goals for the cover crops are: to have at least one cover crop between cash crops, to vary species used and seasons used to help break pest cycles, particularly weed population, and to allow time for a cover crop to grow to a decent size, get mowed and remain on ground as a mulch once mowed, prior to tilling in.

Example Rotations:

- 1) Buckwheat> Winter Squash/Pumpkins> Oats/Austrian Winter Peas
- 2) Tomatoes/Squash/Okra/Beans> Oat/Winter Pea> Sunn Hemp> Kale/Broccoli/Lettuce/Carrots/collards/Beets> Rye
- 3) Field Peas> Oats/Winter Pea> Kale/Collards/Broccoli/Lettuce> Buckwheat> Tomatoes/Squash/Okra/Beans

One frequent rotation for the herb plot is a crop of oats (seeds collected and sold to customers to make teas) in during the cool season and basil in the summer.

Labor—Farmer Joe works at the farm full-time. His wife is a schoolteacher and this provides medical insurance and retirement for the family.

Markets – Fifty percent of the produce is sold through a small CSA and 50% is sold at a farmers' market and at a self-serve farm stand at the farm. The CSA uses a box per week model. Members pay up front for each 20-week season. The share price is \$350/share per family-size box/week. Payments are made in advance of receiving the product. They usually sell 30 shares per season. The combined gross sales are around \$42,000/year. They make extensive use of Facebook and website to keep customers abreast of crops in season.

Infrastructure—The rented land has a well that has a good flow (yields 10 gpm) but also has a lot of sediment, which requires a T-style filter (\$300 annual). The filter is a limiting factor in expansion. They have acquired two used 16' x 50' hoop houses that can be moved (\$1500 initial, \$200 annual) for season extension. They also have a used 16' x 25' hoop house with electric outlet for space heater (\$500 initial, \$100 annual) for growing transplants. For post-harvest cooling, they found a portable tool shed on Craigslist for \$100, insulated it and installed CoolBot AC.

Irrigation - They have put money into irrigation because crop production was so erratic without it. They rented a trencher and installed 1" PVC pipe to each plot (\$1,000 initial cost). They also installed in-line drip

tubes with emitters spaced 12" apart, ½ gpm within the plots (\$10,000 initial cost). All crops are irrigated with drip to save water, except for small seeded crops like lettuce and carrots. This also helps keep food safety problems to a minimum.

Equipment - They have a 10hp walk behind electric start tractor with tiller, rotary plow, brush mower (\$6,000 initial cost). They use an push seeder + broadcast seeder for most direct seed planting (\$125 initial). Fortunately, they have a neighbor with a tractor, tiller, chisel plow and disc for initial field preparation. They pay her \$200 for ground preparation. They also have a variety of basics tools such as wheel hoe, hoes, shovels, and rakes (\$600 initial cost). They use a backpack sprayer (2) + 30 gallon diaphragm battery powered pump w/ 30' hose (\$750 initial) for spot spraying of pesticides. They also use 30-gallon sprayer (powered by tractor) for larger applications.

Ground Preparation - Before the current farmer started working the land, the open land was left fallow and mowed once a year. Before that, the land was in fescue pasture, which has left the soil reasonably stable, with some organic matter, but with a tremendous weed bank of weed seeds. Each time the fields are tilled, new weeds emerge, however, after a year and half of cover crops, the weeds are beginning to become manageable. The old pasture had clayey soils with a low soil pH (5.6 very acidic). They have limed the field every year and it has slowly come up to 6.2 which has made phosphorus and other nutrients more available. Soil preparation consisted of mowing the cover crop, letting it dry on the ground and then dragging the cultivated plots with a small chisel plow and then tilled with the rotary tiller on the 30 HP tractor (borrowed from neighbor). The shaping of raised beds (32' wide) is accomplished with the BCS rotary plow and/or tiller. This past year, the farmer has experimented with skipping the tilling by tractor and relying in the rotary plow on the BCS to break up the soil and shape beds in one pass. This has reduced over-tilling and reduced the reliance on a tractor for field preparation.

Pest Management-

Weeds: Cover crops are used to suppress weeds when a cash crop is not grown. Right now, the cover crops are mowed with walk behind tractor mower, although they are investigating specially designed crimper for no-till so they could leave the cover crop on the soil surface and transplant into it without disturbing the soil. They also make extensive use of a wheel hoe to manage weeds between the rows and hand hoes to keep weeds out of the beds and in the rows. They are experimenting with heavy-duty landscape fabric, as a mulch and weed barrier that can be re-used year to year.

Insects: They scout for insect damage and if need be spot spray with sprayer using OMRI-approved insecticides. They use pan and sticky traps to monitor and trap insects to determine what type of insects are present and if these are an economic problem.

Disease: Resistant cultivars are used when possible and the crop rotation is closely managed to reduce disease pressure. In some cases, straw mulch or landscape fabric is used to reduce soil splashing. There is no overhead irrigation, except micro-spray for small seeded lettuces and carrots.

Cover Crop Management - Cover crops are planted as soon as each field plot is harvested. After as much of the spent crops are removed, the field is mowed, then dragged with the tractor-mounted chisel plow (borrowed). For some crops, that is all the field preparation before broadcasting cover crop seed. For some cover crops, the field is tilled prior to planting.

Planting

As many of the vegetable crops as possible are transplanted by hand. The direct seeded crops for the CSA like turnips are planted with a push seeder.