Small Scale Carrot Production

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Varieties and Schedule

Spring/Main Crop Varieties	Yaya, Mokum, Romance, Sugarsnax 54, Rainbow Mix
Storage Varieties	Bolero is our workhorse, though we will be trying Dolciva in 2018. For markets wanting an imperator, we will use Sugarsnax, but it tends to be a lot more brittle, meaning more care must be taken at harvest, washing, and storage. Yellowbunch and Purple Haze are used for rainbow packs.
Spring Planting Schedule	Soil is worked as early as possible, usually early to mid-May. Beds are formed and stale bedded at least twice before seeding in late May.
Storage Planting Schedule	Beds are prepped in early to mid-June. Storage carrots are seeded in two batches, 1-2 weeks apart, starting in late June. This allows for a slightly staggered harvest and some insurance if one planting fails.

Field Prep

Preceding Cash Crop	Usually leafy greens/salad mix. This crop usually has the best weed control. Depending on block size, this may change.
Preceding Cover Crop	For spring carrots, a late summer planted mix of oats and peas, potentially with radish. For storage carrots, a fall planted mix of rye and vetch.
Soil Amendments	We make beef manure-based compost that is applied at approximately 8-10 T/A. Based on soil test results, we will apply a 10-0-4 organic blend from Morgan Composting. 50% at planting, 50% at first cultivation with sweeps. We aim for 110# total usable N.
Bed Prep	Cover crop is mowed 4-5 weeks before planting then disked. Beds are finished and shaped using a farm-built bed shaper attached to our rotavator 3 weeks prior to planting.
Stale Bed	Beds are stale bedded with a basket weeder and flex tine weeder 2-3 times prior to planting.
Notes on Field Prep	Our soil types have not necessitated subsoiling yet (sandy cobbly loam). We do not have the equipment at this point, and the large amount of rocks make this process a bit more challenging. Many growers in our area have abandoned chisel plows due to the challenges with rocks. We may have to address this eventually.

Seeding

Bed Width	60" on center, 42" bed top
Spacing	15" row centers, 3 per bed. 12-17 seeds per foot - looking for 10-12 carrots per foot.
Seeding Process	Rows are marked using the basket weeder. We use a Jang JP-1 push seeder, though I'd like to upgrade to a 3pt seeder. We only use pelleted seed and carefully calibrate our seeder to make sure we eliminate the need to thin.
Water at Seeding	We try to have the irrigation kit ready at seeding. If not timed with a rain event, we will water using our PVC solid set system after seeding.
Germination	We irrigate daily (unless it rains) for 12-14 days after seeding to make sure we have even germination.

Crop Maintenance

Irrigation	We supplement rainfall, aiming for 1-1.5" of water each week. This is most critical during taproot elongation, which is usually the first 3-4 weeks. We tend to have to apply water more regularly for shorter durations due to our light soils.
Supplemental Fertility	We will broadcast 50% of the 10-0-4 fertilizer at our first cultivation with sweeps.
Pests	Mainly four-legged. We use 3-wire 3-D electric fencing to keep out deer. We also use live traps for rodents.
Diseases	Not many issues. We've seen Alternaria on wet years, but we try to keep weed pressure low and maintain proper spacing.
Weed Management	We rely heavily on stale bedding and proper preparation. Initial cultivation is with the basket weeder as soon as the operator can see the row from the tractor seat. We will make 2-3 passes with the basket weeder, also using the tine weeder when the crop is large enough to handle it. We will do one hand weeding to get anything missed in-row. We will do 1-2 cultivations with sweeps, depending on the need. These function to slightly hill the carrots, which helps prevent green shoulders.
Notes on Crop Maintenance	Each cultivation inclues a wheel track and bed edge cultivation using sweeps and crescent hoes.

Harvest and Yields

Harvest Window	Harvest usually starts after a light frost in mid- to late-September. We are looking to have everything out of the field before a hard frost and snow, usually in the month of October.
Harvest Procedure	Carrots are lifted with a farm-built undercutter. Workers follow behind pulling and stacking. Storage carrots are topped by hand into buckets or bulb crates, then transferred to 20 bushel pallet bins in the field. Green top carrots are bunched in the field with twist ties and loaded into harvest totes.
Yields	For bulk carrots, we expect 1.2-1.4 pounds per row foot. This excludes field culls.
Washing	Top layers of bins are sprayed at harvest (mainly for cooling) and either stored in refrigerated trailer until washing, or brought directly into the pack shed for washing. Carrots are shoveled into a farm-built barrel washer and, if needed, sprayed on the outfeed with a power washer. They feed directly into a 20 bushel bin lined with a plastic liner. For green top carrots, bunches are laid on a screen table and sprayed using a power washer.
Grading/Packing	Heavily forked, damaged, or undersized carrots are left in the field. #1 carrots (straight, at least 6") are used for 25# and 50# bulk packs. #1 and #2 carrots are further graded for bagging in 2# and 5# units and juicer grade are offered in bulk or 5# bags.
Storage	Carrots are stored in lined 20 bushel bins in a refrigerated trailer or root cellar at 32-24 degrees F. Ideally, they would be stored washed, but due to limited labor, most are stored dirty and washed through the winter months. Final sales from storage are usually February-March.