



- ### Winter Storage Crops
- Beets
 - Red, Golden, Chioggia
 - Carrots
 - Yellow Pak, Purple Haze, Bolero
 - Radishes
 - Rover
 - Potatoes
 - Yukons, Russet, Red Norland
 - Hakurei Turnips
 - Garlic
 - Music
 - Onions
 - Pontiac
 - Leeks
 - Lexington
 - Winter Squash
 - Acorn, Butternut, Delicata



Why Not In the Tunnels?



Bed Prep for Storage Crops



Tractor Seeding



Nature's Pace Organics - MI

Allis G Meets Jangs



Crop Seeding, Spacing, and Timing

CROP	LATEST SEED DATE	EARTHWAY PLATE	# of Rows in 30 inch Bed*	HARVEST DATE
BEETS	8/1-8/15	Beet Every Other	2	10/1-10/15
CARROTS	7/15-8/1	Carrot Every Other	2	10/1-10/15
POTATO	5/1	N/A	1	8/15-10/15
RADISH	9/20	Radish	4	10/30
HAKUREI	9/15	Close Brassica	3	10/30

* Low row # because new to cultivation

Cultivation and Hilling



S-Tines



Furrower/Middle Buster



Storage Temperatures and Humidity for Long-Term Crop Storage

- **Low temperature (32F), low humidity (<50%)**
 - Onions, shallots, garlic
 - Can be stored with cool temp and low temp/humidity not available
- **Low temp, high humidity (90%)**
 - Carrots, beets, turnips, rutabagas, leeks
- **Cold temp (35-45F), high humidity**
 - Potatoes, cabbage
- **Cool temp (50-60F), low humidity (<50%)**
 - Winter squash, sweet potatoes
- Often find a balance unless multiple coolers
 - (35-45F and higher humidity)

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Winter Storage Structures – Walk-in Cooler



Beets in Wood Shavings



Celariac



Potatoes in Bulb Crates



Cabbage (too much moisture)



DIY Walk-in Cooler



DIY Walk-in Cooler w/Air Conditioner



Cool-bot Set Up



Light for Winter to Prevent Freezing



Root Cellar



Root Cellar



Root Cellar Blocks



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Steps



32

Walls



33

Roof



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Root Cellar Covered



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Root Cellar – Upper Midwest

- Winter conditions
 - ~40F in temperate climates
 - High humidity (~80%)
- Summer conditions
 - ~60-65F
 - Low humidity

Storing Root Crops

- Store unwashed
- Remove greens for longer term storage
- If greens remain on (short term), store in plastic bags or covered containers (+humidity)

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Prepping Crops for Storage Barrel Washer



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Spray Washing



Butternut Squash (Cool, not Cold)



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Cool and Dry with De-humidifier



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Additional Considerations

- Provide customers with storage recommendations
- Long-term storage for fall harvested leafy greens
- Spring storage if production space is limited

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Determining Costs

CROP	SEED COST	SEEDING LABOR	CROP MAINTENANCE LABOR	HARVESTING LABOR	WASH AND PACK LABOR
BEETS	\$8	\$1.67	\$15.00 1 hand, 2X Tractor	\$60 3 hrs X 2 ppl	\$30 3 hrs
CARROTS	\$7	\$1.67	\$15.00 1 hand, 2X Tractor	\$90 4.5 hrs X 2 ppl	\$50 5 hrs
POTATO	\$15	\$5	\$10 3X Tractor	\$30 1 hr X 3 ppl	N/A
RADISH	\$13	46.75	\$15.00 1 hand, 2X Tractor	\$30 1 hr X 3 ppl	\$100 10 hrs
HAKUREI	\$44	\$5	\$15.00 1 hand, 2X Tractor	\$30 1 hr X 3 ppl	\$40 4 hrs

30 in X 300 ft bed

Determining Prices

CROP	YIELDS CT	YIELD LBS	WHOLESALE PRICE/LB	GROSS SALES	NET
BEETS	2400 4/ft	960 0.4 lbs each	\$1.30	\$1,250	\$1,135
CARROTS	4800 8/ft	960 0.2 lbs each	\$1.60	\$1,500	\$1,335
POTATO	N/A	240 8lbs/1 lb	\$1.60	\$385	\$325
RADISH	12,000 10/ft	1,200 10/lb	\$1.75	\$2,100	\$1,900
HAKUREI	4500 5/ft	900 5/lb	\$1.60	\$1,440	\$1,306

Missing Costs?



Roots and Leaves

More Crops to Sell =
Less Costs/Crop



Crop Seeding, Spacing, and Timing

CROP	TP DATE	# of Rows in 30 inch Bed*	HARVEST DATE
GARLIC	N/A	2	7/15
ONIONS	4/15-5/1	2	10/1-10/15
LEEKs	4/15-5/1	2 1 for hilling?	8/15-10/15
SHALLOTS	4/15-5/1	2 Cluster Plant	10/30
WINTER SQUASH	6/1	1 Rows 8 Feet Apart	10/30

* Low row # because new to cultivation

Other Winter Storage Crops - Curing Squash



Curing Garlic



Curing Shallots



Thanks! Questions?

