



## Organic Vegetable Production *Integrated, Sustainable Production Systems*

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## Horticultural Production in Nebraska 2002

	No. of Farms	Crop Value	Average per Farm
Vegetables, melons, potatoes, sweet potatoes	261	\$58,337,000	\$223,513
Fruits, tree nuts, berries	158	\$ 1,375,000	\$ 8,703
Nursery, greenhouse, floriculture, sod	355	\$34,259,000	\$ 96,504
Cut Christmas trees & short rotation woody crops	84	\$ 797,000	\$ 9,488

## Horticultural Land Use in Nebraska 2002

Land Use	Irrigated Land			
	Farms	Acres	Farms	Acres
Vegetables	230	4,222	119	2636
% change '97 to '02	-16%	33%	-8%	96%
Land in orchards	231	1,080	87	282
% change '97 to '02	44%	12%	164%	159%
Land in berries harvested for sale	34	39	18	29
% change '97 to '02	13%	-9%	-14%	-19%
Potatoes	60	22,059	45	22,044
% change '97 to '02	-38%	-10%	-35%	-8%
Dry edible beans	758	164,924	742	160,614
% change '97 to '02	-35%	-7%	-29%	-2%

## USDA Fresh Market Vegetables Quality Standards

- Apply to all fresh market wholesale produce
- Zero to low tolerance for insect damage or disease for US #1 or Fancy (organic wholesale produce also must comply)
  - Limited market for anything less than US#1
  - Market standards often higher than USDA standards
  - See examples at [www.ams.usda.gov](http://www.ams.usda.gov)

## Considering Organic Production?

- Do you enjoy walking your fields on a regular basis?
- Can you distinguish pests from beneficial insects?
- Are you curious about why things happen on the farm?
- Can you tolerate some weeds, disease, and insect damage?
- Do you have the patience and resources to trade short-term economic returns for longer-term benefits while building soil health?

## Other Considerations

- How will the transition period affect your family?
- What resources are available? Consider labor, borrowing capacity, local knowledge base regarding organic production, OMRI-approved supplies.
- How will you develop new market relationships required for organic products?

## Greenhouse Production



Eggplant and Tomatoes

## Develop Organic Garden Greenhouse Plan

Production Plan Information: field history and locations  
Transplants/Seedlings, Seed and Seed Treatment Information

Greenhouse Management

Outdoor Production Area Management

Production Management: fertility, rotation, compost plan,  
pest/disease and weed control

Handling and Transportation

**Part of Recordkeeping for Organic Production**

## Strategies For Organic Vegetable Production

Tillage

Fertility Issues

Cover Crops

Weed Management

Tillage is an important part of the operation

- **Pro**
  - Optimize soil condition for plant growth
    - Aeration
    - Drainage
  - Conservation tillage
  - Increase surface roughness for reduced wind erosion
  - Control weeds
- **Con**
  - Destroys integrity of soil fungi
  - Disrupts soil aggregates, pores between soil particles, worm channels
  - Can increase compaction and crusting
  - Can create a compaction layer
  - Loose soil may increase soil erosion.

## NOP Standard § 205.203 Soil fertility and crop nutrient management practice standard.

- (a) The producer must select and implement tillage and cultivation practices that *maintain or improve* the physical, chemical, and biological condition of soil *and* minimize soil erosion.
- (b) The producer must manage crop nutrients and soil fertility through rotations, “**cover crops**”, and the application of plant and animal materials.

## Cover Crops

- **Pro**
  - Reduce soil erosion, increase soil cover
  - Increase soil tilth, organic matter, soil biology
  - Vegetables leave little crop residue on the soil surface
  - Beneficial insect habitat
- **Con**
  - Reduce water availability for crop
  - Establishment problems, water availability, drip irrigation
  - Pest insect habitat
- **Kill mechanically by hand, machine, or flame**

**Sweet Yellow Clovers and Red Clovers**



**Buckwheat**



**Evergreen Windbreak with Wildflower Strip**



### Problems Caused By Weed Competition

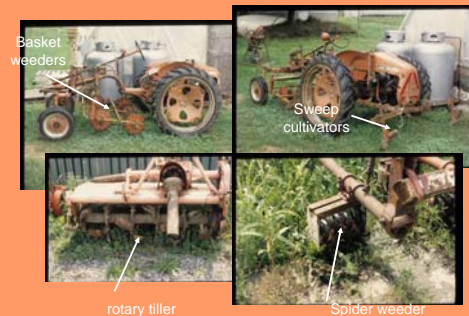
Vegetables are poor competitors

- Loss in yield
- Reduce light to crop = lower sugars, less flavor
- Interfere with pollination = yield reduction
- Interfere with harvest efficiency = lost yield; increased labor costs

### Weed Management Strategies


- Use cover crops for weed suppression, competition, allelopathy
- Cover crops provide a home for beneficial insects, pests, pathogens
- Mechanical tools for weed control
- Crop rotations
  - e.g. deep rooted then shallow rooted crops
  - annual rye or cruciferous vegetables
- Mulches
  - Paper, plastic, hay, straw, etc.
- Organic herbicides (vinegar, fatty acids, etc).

### Cultivation Equipment




**Alfalfa hay mulch between crop rows**

- Weed suppression
- Soil moisture retention
- Residual nitrogen
- Soil Organic Matter?
- Humidity?? Disease??



## Insect Management

- Trap crops
- Beneficial insects
- Cultivar selection
- Insecticides “soft” or organic
- Crop sequences, movement of pests
- “Banker” plants, companion planting



“Banker” pepper plants


**Companion Planting with Flowers**




**Another Strategy: Cultivar Selection**  
Aphids in this trial preferred one cabbage cultivar of 23



**Beneficial Insects can play an important role**



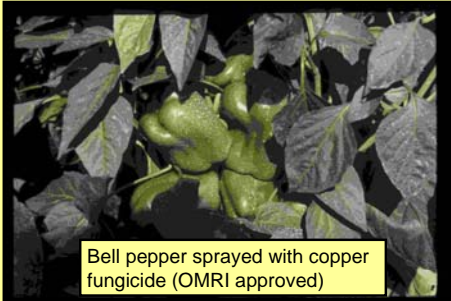
Ladybird beetle  
adult



Lacewing larvae on sunflower  
head



Some inputs are allowed – Check with your Certifier



Bell pepper sprayed with copper fungicide (OMRI approved)

Organic Gardening Can Be Successful!



Provide Habitat for Many Types of Birds for Insect and Rodent Control



Don't Forget Bats !

Attract Pollinators



Organic vegetable production involves more than the crop. Planning for future production, consideration of the areas around the garden and the impact of what you do and can do, plus building the quality of the soil and environment are as important as the immediate thought,

"I think I'll plant an organic garden"

<http://organic.unl.edu>

**What Organic Items Do Consumers Buy Most Often?**

- Tomatoes 37%
- Leafy vegetables 18%
- Carrots 15%
- Potatoes 6%
- Squash 5%
- Beans 4%
- Mushrooms 4%
- Celery 4%
- Broccoli 4%
- Apples 12%
- Peaches 5%
- Bananas 5%
- Grapes 5%
- Strawberries 4%
- Cantaloupe 4%
- Oranges 3%

Summarized in Fresh Trends 2002 , a publication of The Packer

## Marketing Your Produce at Farmers Markets



## Farmers Markets



## NEBRASKA FOOD COOPERATIVE

About the Co-op | How to Get Involved | Join the Co-op | Shop with the Co-op | How to Contact Us



### Bringing local food to your table

Our Mission: To foster a local food community and promote a culture of stewardship by cultivating farmer-consumer relationships, expanding the enjoyment of healthy food, increasing food security through diversity, and enhancing overall food sustainability.

The traditions and flavor of local food will make your table

### Year-round, On-line Farmers Market

August/online opens Friday, July 27th and closes at noon on Monday, August 6th with delivery on the 9th.

#### Discussion Forum & Wish List

#### About the Co-op

#### Shop the Co-op

#### How to Get Involved

#### Join the Co-op

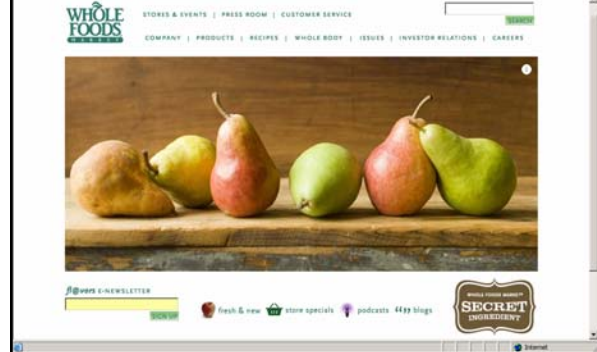
Open for Orders

Shipping Dates

AUGUST 2017							SEPTEMBER 2017						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30	31				

OCTOBER 2017							NOVEMBER 2017						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30	31				

## Grocery Stores



## The GFL (Good, Fresh, Local) UNL Sustainable Food Project

The GFL Project is a University of Nebraska-Lincoln residence hall dining program designed to serve traditional meals and individual menu items where the menu ingredients:

Come mostly from small LOCAL (Nebraska) farmers and producers

- ✓ Are produced using sustainable agriculture practices
- ✓ Are seasonal
- ✓ Include organic products

Contact Pam Edwards, (Assistant Director University Dining Service) at 472-9045 or [pedwards1@unl.edu](mailto:pedwards1@unl.edu).

## Resources

- Organic Certification Cost-Share
  - State Dept. of Agriculture: Casey Foster
- Value-added Ag Producer Grants
  - [www.rurdev.usda.gov/rbs/coops/vadg.htm](http://www.rurdev.usda.gov/rbs/coops/vadg.htm)
- Sustainable Ag Research & Education Producer Grants
  - [www.sare.org](http://www.sare.org)
- Farm Select Transition to Organic
  - On-line classes [www.Newfarm.org](http://www.Newfarm.org)
- The National Organic Program
  - [www.ams.usda.gov/NOP](http://www.ams.usda.gov/NOP)
- Nebraska Sustainable Ag Society
  - [www.nebnsaag.org](http://www.nebnsaag.org)
- Nebraska Extension
  - <http://extension.unl.edu>
- Organic Materials Review Institute (OMRI)
  - <http://www.omri.org/>

## For more information about Organic Vegetable Production

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