



UNIVERSITY OF ILLINOIS
EXTENSION

Illinois Migrant Council

PREPARING A NEW GENERATION OF ILLINOIS FRUIT AND VEGETABLE FARMERS

a USDA NIFA BEGINNING FARMER AND RANCHER
DEVELOPMENT PROGRAM PROJECT
GRANT # 2012-49400-19565

<http://www.newillinoisfarmers.org>





UNIVERSITY OF ILLINOIS
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**PREPARING A NEW GENERATION
OF ILLINOIS FRUIT AND VEGETABLE FARMERS**

EVALUATING AND SELECTING CULTIVARS

Elizabeth Wahle &
Jeff Kindhart



Objectives ...

- Understand why crop, variety, and cultivar selection is important
- Know where to find information on the performance of specific varieties and cultivars
- Examine a few examples of important traits of specific varieties or cultivars
- Know how to evaluate crop performance on your farm



Before you select crops and specific varieties or cultivars, remember that you can't grow everything...

- Grow what you have a market for ... or what you think you can develop a market for.
- Grow what fits in your succession plan.
- Grow what fits in your space.
- Grow what thrives in your particular environment.

"If you can't sell it, don't grow it."



Variety

- Plants that differ from other members of the species in minor ways
- Appears naturally with no human intervention
- Name is in Latin and follows the species name
 - Commonly left out of catalogue listing
- Though not technically correct, is used interchangeably with cultivar

Good example of variety

- *Leaves*
 - *Brassica oleracea acephala* - kale, collards
 - *Brassica oleracea alboglabra* - Chinese broccoli
- *Terminal bud*
 - *Brassica oleracea capitata* – red and green cabbage
 - *Brassica oleracea sabauda* - savoy cabbage
- *Axillary (lateral) buds*
 - *Brassica oleracea gemmifera* - Brussels sprouts
- *Stem*
 - *Brassica oleracea gongylodes* - kohlrabi
- *Inflorescences*
 - *Brassica oleracea botrytis* - cauliflower
 - *Brassica oleracea italica* – broccoli



Another example of variety

- *Zea mays amylacea* - flour corn
- *Zea mays everta* - popcorn
- *Zea mays indentata* - dent corn
- *Zea mays rugosa* and *Zea mays saccharata* - sweet corn
- *Zea mays ceratina* - waxy corn
- *Zea mays tunicata* - pod corn
- *Zea mays indurata* – flint corn
- *Zea mays japonica* - Striped maize



Cultivar

- Cultivated variety = Cultivar
 - Human intervention (selective breeding)
- Non-Latin name
 - Name follows species or variety name
 - Capitalized and in single quotes
- Example
 - *Zea mays rugosa* 'Ambrosia'
 - *Zea mays rugosa* 'Silver King'
 - *Zea mays rugosa* 'Mirai'



Open Pollination

- An open-pollinated plant cultivar is one in which pollination is carried out by wind, insects, or other naturally occurring agents
- The seed saved from an open-pollinated cultivar can be grown in subsequent years and will breed true providing that it does not cross-pollinate with another cultivar of the same variety or species.

A Hybrid cultivar (i.e controlled pollination)

- Is made by cross-pollinating two specific parent varieties/cultivars
- This first generation of offspring is referred to as the F1 hybrid
- Although F1 hybrids often show increased yield and vigor, the plants will not breed true if its seeds are saved
 - F1 Hybrids include many kinds of sweet corn, summer squash, melons, cucumbers, carrots, spinach and some tomatoes and peppers

Heirloom

- Open pollinated
- Often older cultivars
 - passed along from generation to generation
- Often chosen for flavor
- Most are disease-susceptible



'Sainte Lucie,' 85 days, late-season, indeterminate, open pollinated

Genetically modified organisms (GMO)

- A variety of methods used to genetically modify organisms or influence their growth and development by means that are not possible under natural conditions or processes and are not considered compatible with organic production
 - Such methods include cell fusion, microencapsulation and macroencapsulation, and recombinant DNA technology (including gene deletion, gene doubling, introducing a foreign gene, and changing the positions of genes when achieved by recombinant DNA technology)
- Such methods do not include the use of traditional breeding, conjugation, fermentation, hybridization, in vitro fertilization, or tissue culture.

Cultivars within a crop differ in ...

- Response to environment
- Growth habit, fruit shape
- Overall yield
- Maturity
- Color
- Flavor and nutritional value
- Disease and insect resistance
- Post-harvest stability
- Market niche
- Profit potential

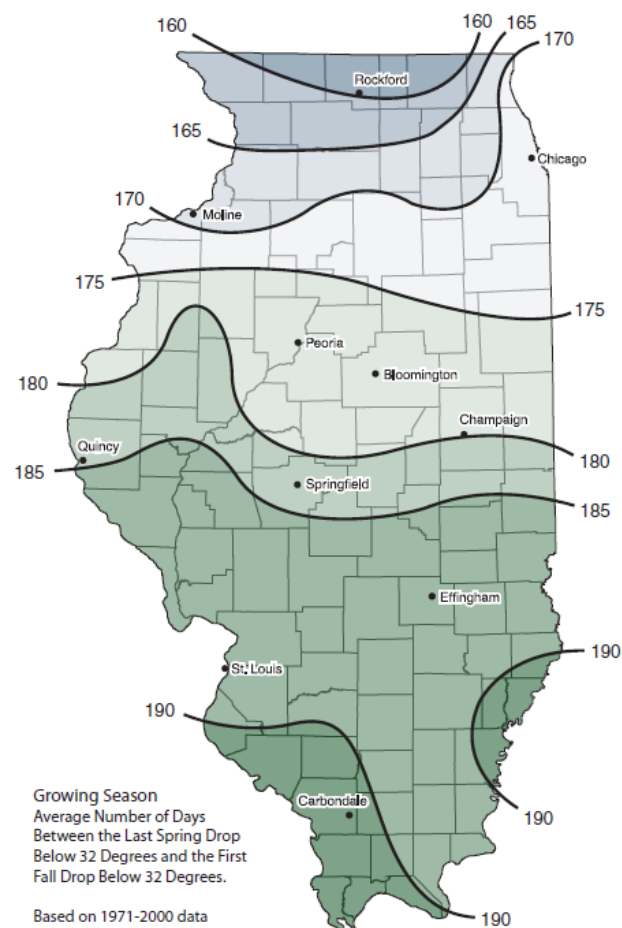
Response to environment

- Cold-hardiness
 - Contender peaches; Illini Hardy blackberries
 - Differences in sweet corn vigor re: early planting
- Seasonality
 - Day-neutral versus “June-bearing” strawberries
- Ability to stand up to summer heat and humidity
 - Cherries, pears, lettuce, spinach ...

Winter and Summer Extremes



Number of Frost-free Days in IL



Growing Season
Average Number of Days
Between the Last Spring Drop
Below 32 Degrees and the First
Fall Drop Below 32 Degrees.

Based on 1971-2000 data
Illinois State Water Survey
Copyright 2003

Growth habit, fruit shape

- Determinate versus indeterminate tomatoes
- Bush versus vining type cucumbers, bush versus pole beans
- Plum, grape, cherry, and beefsteak tomatoes



Space

- Trellising
- Vining
- Canopy
- In-row spacing
- Between row spacing

Indeterminate tomatoes must be trellised and will grow very tall.



Yield

- Overall yield
- Early yield or consistent yield

Data in the Midwest Vegetable Variety Trial Reports ...

<https://ag.purdue.edu/hla/fruitveg/Lists/Midwest%20Vegetable%20Variety%20Trial%20Report%20Bulletins/AllItems.aspx>

Maturity

- Sweet corn
 - Bi-color – Fastlane – 67 days
 - Bi-color – Ambrosia – 75 days
 - Bi-color – Providence – 82 days
- Tomatoes
- Peaches
- Apples
- Brambles
- (all fruit and vegetable crops)

Berries & Grapes	Ripening Date by Variety																			
	June				July				Aug.				Sept.				Oct.			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Blackberries																				
Natchez																				
Ouachita																				
Apache																				
Navaho																				
Hull																				
Triple Crown																				
Chester																				
Raspberries																				
Jewel (Black)																				
Canby (Red)																				
Royalty (Purple)																				
Encore (Red)																				
Dorman Red																				
Heritage (Red)																				
Bunch Grapes																				
Fredonia																				
Mars (Seedless)																				
Delaware																				
Niagara																				
Concord																				
Muscadines																				
Supreme																				
Nesbitt																				
Late Fry																				

Apples	Ripening Date by Variety															
	July				Aug.				Sept.				Oct.			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Ginger Gold																
Gala																
Ozark Gold																
McIntosh																
Honey Crisp																
Shenshu																
Daybreak Fuji																
Cortland																
Empire																
Red Delicious																
Bramley																
Golden Delicious																
Jonagold																
Red Winesap																
Grimes Golden																
Mutsu (Crispin)																
Cameo																
Suncrisp																
Red Rome																
Jonathan																
Braeburn																
Stayman																
York																
Northern Spy																
Fuji																
Goldrush																
Arkansas Black																
Granny Smith																
Pink Lady																

Plums & Prunes	Ripening Date by Variety											
	June				July				Aug.			
	1	2	3	4	1	2	3	4	1	2	3	4
Methley												
Santa Rosa												
Ozark Premier												
Damson												
Starking Delicious												
Elephant Heart												
Castleton (Prune)												
Stanley (Prune)												
Empress (Prune)												

Peaches & Nectarines	Ripening Date by Variety											
	July				Aug.				Sept.			
	1	2	3	4	1	2	3	4	1	2	3	4
Yellow Peaches												
Red Haven												
Late Sun Haven												
New Haven												
Topaz												
Washington												
Jay Haven												
Indian Cling												
Red Globe												
Loring												
Contender												
Crest Haven												
Jersey Queen												
Biscoe												
Elberta												
J.H. Hale												
Monroe												
Encore												
Laurel												
Flame Prince												
Parade												
Ouachita Gold												
Fairtime												
White Peaches												
White Lady												
Georgia Belle												
Blushing Star												
Snow Giant												
Nectarines												
Summer Beau												
Sunglo												
Flavortop												
Red Gold												
Zephyr												
Fantasia												
Honey Royale												

Perdue's Mountain Fruit Farm, Taylors, SC

<http://www.carolinafarmers.com/perdue/emails/2010/email2010-06-04.html>





Growing with you...™



- About Adams County Nursery
- Order Fruit Trees
- Fruit Tree Bookstore
- Orchard Supplies
- Frequently Asked Questions
- Fruit Tree Articles
- Planting Guide
- Home Orchard Calendar

Fruit Tree Types

- [Apple Trees](#)
- [Apricot Trees](#)
- [Aprium & Pluot Trees](#)
- [Cherry Trees](#)
- [Nectarine Trees](#)
- [Peach Trees](#)
- [Pear Trees](#)
- [Plum Trees](#)
- [Disease Resistant Trees](#)

Related Information

- [Pricing Information](#)
- [Maturity Chart](#)
(PDF Format)
- [Apple Pollination Chart](#)
(PDF Format)
- [Our Guarantee](#)
- [Apple Rootstock Info](#)

Apple Tree Varieties

Select an Apple Variety :

Apple Tree Varieties in order of Ripening (Early to Late)

The list below identifies the ripening order for our apple varieties. Use this list to help choose apple trees which yield fruit at different times throughout the season. The harvest dates listed here are approximate for south central PA. Adjust accordingly for other locations.

- Yellow Transparent - July 1
- Yellow Transparent Perrine - July 1
- Lodi - July 5
- Pristine (CO-OP 32) PP#9,881 - July 10
- Redfree - August 5
- Ginger Gold® (Mountain Cove dtv.) - August 12
- Zestar!® (Minnewashta dtv.) PP#11,367 - August 15
- Dandee Red PP#16,620 - August 15
- Sansa - August 15
- Initial™ (X-6163 dtv.) - August 20



Accomplishing succession of harvests

Choosing varieties

- Planting a range of cultivars with different maturity dates

Why? Allows for extended harvest and sales of product.

Planting a range of maturities at each planting rather than planting one maturity every 1-2 weeks (for instance) has less risk in outdoor production due to weather concerns.

Repeating plantings over time

- Planting the same cultivar periodically over the growing season





Scheduling Vegetable Plantings ATTRA for Continuous Harvest

A Publication of ATTRA - National Sustainable Agriculture Information Service • 1-800-346-9140 • www.attra.ncat.org

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NCAT Agriculture
Specialist
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Photo by Edwin Remsburg, USDA/CSREES.

The best approach to planning for a continuous harvest is to keep good production records from previous growing seasons and to compare notes with other local growers. You also can find information in seed catalogs and Extension bulletins. You need to know, or be able to estimate:

- appropriate planting dates
- number of days to harvest
- length of harvest from first to last pickings

These factors are affected by several things. Weather, for example, is a major variable. Appropriate planting dates are commonly scheduled around the average annual frost-free date in the spring and the average

annual first-freeze date in the fall. You can get these dates for your area from your local Extension agent or garden store. You can find a USA Frost Zone map online at www.avant-gardening.com/zone.htm.

Weather has a large influence on timing because of its effect on seedling establishment and crop growth. For example, peas planted at the first possible planting date in the spring and then again two weeks later will usually mature only one week apart. Germination conditions at the time of the second planting will likely be much better, and the young plants will grow faster as the days lengthen, slowly catching up with the first crop. This same process happens in reverse for fall crops. Even a couple of days' difference in midsummer planting dates can lead to a harvest date difference of two, or even three, weeks. (Ogden, 1992.)

Two ways to extend the harvest period for some crops are: 1) to plant varieties with a different number of days to maturity at the same time; and 2) to plant the same variety multiple times in succession.

Sweet corn often is grown in successive plantings to prolong the harvest season. A good way to stagger sweet corn plantings is to wait until one crop is 1 to 2 inches tall before planting the next. Sweet corn tends to emerge more slowly in cool soil (50–55°F) than in warm soil (68–77°F). Standard sweet corn varieties are better for early spring plantings than the super-sweet varieties, since the super-sweet varieties won't perform as well in cool soil. Sowing sweet corn about one week before the average frost-free date is a rule of thumb for the

We have also provided Zack Grant's spread sheets and the link to Ag-squared, as well as catalogs such as Johnny's Select Seeds that provide guidance on planting schedules.

ATTRA—National Sustainable Agriculture Information Service is managed by the National Center for Appropriate Technology (NCAT) and is funded under a grant from the United States Department of Agriculture's Rural Business-Cooperative Service. Visit the NCAT Web site (www.ncat.org/sarc_current.php) for more information on our sustainable agriculture projects.



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<https://attra.ncat.org/attra-pub/summaries/summary.php?pub=20>

Vegetable Planting Calendar

Lewis W. Jett
Department of Horticulture

Planning and Planting Guides

Vegetable	Approx. Planting per Person per Year	Approx. Planting per Person per Year	Seed for 100 ft row	Min. Row Space (in.)	Field Imple.	Inches Between Plants in Row	Depth to Plant (inches)	Days from Planting to Eating Stage	Vitamin Content* A I.U./100 g	C mg
RICH IN VITAMINS A & C										
Spinach	5-10 ft	10-15 ft	1 ounce	18	42	3	0.25	40-50	11,790	30
Turnip greens	5-10 ft	10-15 ft	0.5 ounce	18	42	3	0.25	35-45	10,600	60
Kale	5-10 ft	10-15 ft	0.5 ounce	24	42	8	0.25	50-65	8,380	51
Collards	5-10 ft	10-15 ft	0.5 ounce	24	42	12	0.25	65-95	7,630	44
Mustard greens	5-10 ft	10-15 ft	0.5 ounce	18	42	3	0.25	30-40	7,180	45
Cantaloupe	3-5 hills	3-5 hills	0.25 ounce	48	60	60	0.5	80-90	3,420	33
Broccoli	5-10 plants	5-10 pl	0.5 ounce**	30	42	24		70-80	3,400	74
RICH IN VITAMIN A										
Carrot	5-10 ft	10-15 ft	0.25 ounce	18	42	3	0.25	70-85	12,500	5
Swiss chard	5-10 ft	10-15 ft	2 ounces	18	42	3	0.5	55-65	9,690	17
Sweet potato	10-20 pl			30	42	12		150	9,510	23
Winter squash	3-5 hills		0.5 ounce	48	60	60	0.5	100	6,190	7
RICH IN VITAMIN C										
Tomato	3-5 pl	5-10 pl	0.125 ounce**	48	60	36	ground staked	75-90	1,100	23
Pepper	2-3 pl		0.5 ounce**	42	60	18		70-75		
Cabbage	3-5 pl	3-5 pl	0.25 ounce**	30	42	18		70-80	740	99
Chinese cabbage	5-10 ft		0.5 ounce	24	42	12	0.25	70-80	90	31
Cauliflower	3-5 pl		0.25 ounce**	24	42	6		75-90	260	31
Kohlrabi	3-5 ft	5-10 pl	0.25 ounce	24	42	24	0.25	65-75	90	28
			0.25 ounce	24	42	4		55-65	Trace	37
OTHER GREEN VEGETABLES										
Asparagus	10-15 roots	10-15 rts	1 ounce	48	48	18	0.5	3 years	1,040	23
Peas	10-15 ft	25-30 ft	1 pound	24	42	2	1	65-75	720	15
Green beans, bush	10-15 ft	20-30 ft	1 pound	24	42	3	1	50-60	660	14
pole	3-5 hills	3-5 hills	0.5 pound	30	42	36	1	60-70		
Okra	3-5 ft	5-10 ft	2 ounces	30	42	12	0.5	55-60	740	20
STARCHY VEGETABLES										
Potato	50-100 ft		10 pounds	30	42	12	4	100-120	20	15
Sweet corn	15-25 ft	30-50 ft	0.25 pound	36	42	10	0.5	70-85	390	8
Lima beans, bush	10-15 ft		1 pound	24	42	3	1	70-80	290	15
pole	3-5 hills	3-5 hills	0.5 pound	30	42	36	1	85-95		
Crowder peas	10-15 ft	15-25 ft	0.5 pound	24	42	3	1	75-85	370	2
Peanuts	10-25 pl		0.5 pound	30	42	6	1	135	0	0
OTHER VEGETABLES										
Beans, wax	10-15 ft	10-20 ft	1 pound	24	42	3	1	50-60	120	5
Beets	5-10 ft	10-20 ft	2 ounces	18	42	3	0.5	55-65	20	7
Cucumber	2-3 hills	3-5 hills	0.25 ounce	36	48	48	0.5	65-70	0	8
Eggplant	2-3 pl	2-3 pl	0.5 ounce**	24	42	24		80-90	30	5
Endive	3-5 ft		0.5 ounce	18	42	6	0.25	80-90	3,000	11
Lettuce, head	5-10 ft		0.25 ounce**	18	42	6	0.25	55-60	540	8
Lettuce, all other	5-10 ft		0.25 ounce	18	42	3	0.25	35-50	1,620	18
Onions, dry	25-50 ft		0.5 ounce	18	42	3	0.25	100-120	50	9
Onions, green	10-15 ft	sets or plants		18	42	3		25-35	50	24
Parsnips	10-15 ft		0.5 ounce	24	42	3	0.5	150	0	12
Pumpkin	3-5 hills		1 ounce	48	60	60	0.5	110	3,400	—
Radish	5-10 ft		1 ounce	18	42	1	0.25	25-35	30	24
Rhubarb	2-3 rts	2-3 rts		48	48	36	2	2 years	20	6
Salsify	10-15 ft		1 ounce	24	42	3	0.25	150	?	?
Squash, summer	2-3 hills		0.5 ounce	48	60	48	0.5	80-90	260	11
Turnip	10-15 ft		0.5 ounce	18	42	6	0.25	50-60	Trace	18
Watermelon	3-5 hills		1 ounce	96	120	96	0.5	85-95	590	6

*Vegetables are primary sources of vitamins A and C. They also are good sources of other vitamins and minerals. In addition, they provide important bulk to our diets. The figures for vitamin content were taken from USDA Handbook 8, Composition of Foods. Figures indicate amounts of vitamins per 100 gram sample (about 1/2 pound) for cooked vegetables unless vegetable is normally eaten raw. The average active adult needs about 5,000 international units (I.U.) of vitamin A and 75 milligrams (mg) of vitamin C daily.

**For direct seeding. Normally these vegetables are planted in the garden as plants.

Couple variety-specific information with general guidelines on yield and maturity to plan plantings that meet market needs.

<http://extension.missouri.edu/explorepdf/agguides/hort/g06201.pdf>



VEGETABLE PLANTING CHART

Vegetable	Amount to Plant		Planting Instructions				Time Required	
	Seeds or plants per 100-ft. row	Average amount suggested per person	Estimated yield per 100-ft. row ^a	Distance between plants	Distance between rows	Planting depth	Frost resistance ^c	Approx. number of days (or years) to harvest ^d
Artichoke, Jerusalem	40-50 tubers	5-10 ft.	150-200 lb.	24-30 in.	36-48 in.	2-3 in.	FT	130-150
Asparagus	50 roots	10-15 roots	80-100 lb.	18-24 in.	36-60 in.	6-8 in.	VH	2 years
Bean, Bush (lima)	1/2 lb.	10-15 ft.	30 lb.	3 in.	18-24 in.	1-1 1/2 in.	WL	50-60
Bean, Bush (snap)	1/2 lb.	10-15 ft.	50 lb.	3 in.	18-24 in.	1-1 1/2 in.	T	50-60
Bean, Pole	1/2 lb.	5-10 ft.	50 lb.	3-4 in.	30-36 in.	1-1 1/2 in.	T	60-70
Beet	1 oz.	5-10 ft.	75 lb.	2-3 in.	12-18 in.	1/2-1 in.	T	55-65
Broccoli	50 plants	5-10 plants	80-100 lb.	18-24 in.	30-36 in.	b	FT	70-80
Brussels sprouts	50 plants	3-5 plants	80-100 lb.	18-24 in.	30-36 in.	b	FT	70-80
Cabbage	75-100 plants	3-5 plants	150-200 lb.	12-18 in.	18-30 in.	b	FT	70-80
Carrot	1/4 oz.	5-10 ft.	100-150 lb.	1-2 in.	12-18 in.	1/4 in.	FT	65-75
Cauliflower	50-75 plants	3-5 plants	80 lb.	18-24 in.	24-36 in.	b	FT	60-65
Celeriac	200 plants	5-10 ft.	100-150 lb.	6 in.	18-24 in.	b	FT	100-120
Celery	150-200 plants	4-6 plants	200 lb.	6-8 in.	24-36 in.	b	FT	100-110
Chard	2 oz.	5-10 ft.	100 lb.	4-6 in.	18-24 in.	1/2 in.	FT	50-60
Chinese cabbage	1/2 oz.	5-10 ft.	200-300 lb.	12-15 in.	24 in.	1/4 in.	FT	80-90
Collards	1/2 oz.	5-10 ft.	80-100 lb.	12-15 in.	18-24 in.	1/4 in.	VH	70-80
Corn, Sweet	4 oz.	15-25 ft.	100-150 lb.	9-12 in. (single) 36 in. (hills)	24-48 in.	1/2-1 in.	T	70-90
Cucumber	1 oz.	2-3 hills	100-150 lb.	12 in. (single) 36 in. (hills)	48-72 in.	1/2 in.	WL	60-75



What do your buyers want? What will attract them to your stall at the farmers' market?

Color

- Golden Delicious versus Arkansas Black apples
- Fruit colors of bell peppers
- White, yellow, and bi-color sweet corns
- Potatoes, carrots, etc.



Flavor and nutritional value

- Super-sweet & sugary-enhanced sweet corn
- Tomato cultivars
- Vidalia versus other onions (really?)
- Antioxidants in different brambles and blueberries
- Anti-cancer components of different broccoli cultivars

Disease and insect resistance

- V, F, N designations in seed catalogs
 - Verticillium Wilt, Fusarium Wilt, Nematodes
 - But there are many more resistance designations (well over 100 crop-disease resistance designations in the 2013 Siegers catalog)
- Resistance to one or more key diseases of apples
- Stewart's wilt resistance in sweet corn

Post-harvest stability, quality

- Shipping versus fresh-market sweet corn
- Summer versus fall apples
- Susceptibility to cold-injury in spinach

Although picking sooner or later affects post-harvest stability (think peaches or tomatoes), variety selection also influences post-harvest quality. Varieties best-suited to farmers' markets often are not the same as those grown for sale to a local grocery store or for wholesale.

Market niche

- Acceptable to consumer
- Retailer
- Wholesaler
- Institution or restaurant ...

Can you grow a cultivar at a density or spacing that aids in harvest AND satisfies the needs of the buyer? Can you do it profitably? (Remember, the market niche for a cultivar is not infinite in size ... another grower's success may or may not be an indicator that you can succeed by doing the same thing.)

Profitability

- \$\$ per square foot or acre
 - Based on yield, price, and amount actually sold ... minus input costs
 - Requires accurate record-keeping

Certified organic production?

- Requirements for seed purchasing
 - The National Organic Program (NOP)
(<http://www.ams.usda.gov/AMSv1.0/NOPNationalOrganicProgramHome>)
requires crop and plant producers to use organic seeds, annual seedlings and planting stock within their operations unless they can verify that such sources do not exist.
 - Untreated seed is not the same as organic seed
 - Heirlooms to hybrids can be grown organically – or not

Information on Cultivar Performance

- Seed and plant stock catalogs, suppliers
- Research reports
- Extension programs
- Other growers, farmers markets
- Your experience and records

Study catalogs carefully

- Great source of variety-specific information.
- Companies spend a good deal of time and effort evaluating their varieties under specific conditions and provide valuable information.
- For example, lettuce: leaf or head, cold or heat tolerant, high tunnel or field grown, organic, salad mix component, disease or insect resistance or susceptibility, grows well in containers ...

Varietal evaluation

- Midwest Vegetable Variety Trial Reports
- Can be found online at:
<https://ag.purdue.edu/hla/fruitveg/Pages/MVVTRB.aspx>
- Created by Extension and University research stations from states across the Midwest.

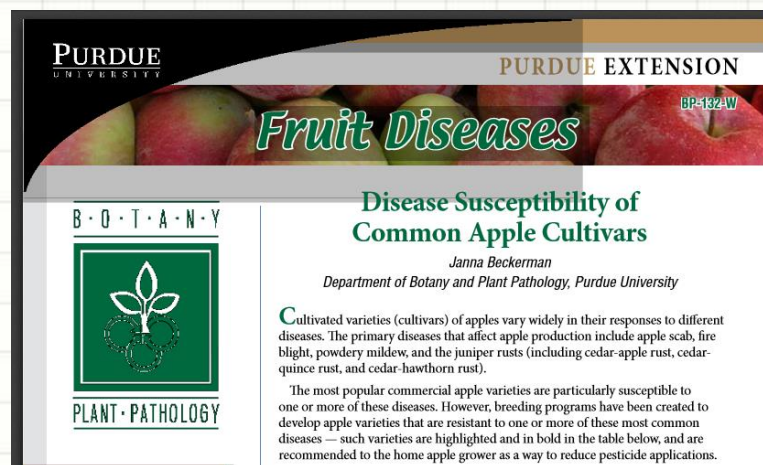
<http://www.btny.purdue.edu/pubs/id/id-56/ID-56.pdf>




The annual Midwest Vegetable Production Guide for Commercial Growers includes listings of several varieties suitable for commercial production ... but it is not all-inclusive.

Apple and Peach Cultivars and Rootstocks

- Rootstocks determine size and (to some extent) disease resistance
- Disease-resistant cultivars allow minimal fungicide use (see <http://www.ca.uky.edu/agc/pubs/id/id93/intro.pdf> and <http://www.extension.purdue.edu/extmedia/BP/BP-132-W.pdf>, as well as nursery catalogs)
- Different cultivars provide harvests over a range of several weeks ... see nursery catalogs





Order Fruit Trees
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 Orchard Supplies
 Frequently Asked Questions
 Fruit Tree Articles
 Planting Guide
 Home Orchard Calendar

Contact Information

Address:
26 Nursery Road
P.O. Box 108
Aspers, PA 17304

Phone:
(717) 677-8105

Fax:
(717) 677-4124

Office Hours:
(year round)
Mon - Fri : 7:00 to 5:00

(November, March & April)
Sat : 7:00 - 12:00

Fruit Tree Links

[PSU Fruit Production Guide](#)
Great Resource for the Home Gardener!

[Nourse Farms](#)

[Hollabaugh Fruit Farm](#)

Apple Rootstocks

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The use of clonal rootstocks for apples began in the mid 1900's. Selections from the East Malling Research Station, Kent, England were introduced to commercial fruit production as a means to control tree vigor, promote early fruiting, and improve tree efficiency. The widespread acceptance of this technology led the way for rootstock breeding in the United States, Poland, and the former Soviet Union. The M and EMLA rootstocks from East Malling, the Bud rootstocks from the former Soviet Union, and more recently, the G rootstocks from Geneva, New York have become the most commonly used rootstocks for apple production in the United States and throughout the world.

M-9 (337)

A dwarfing rootstock, ideal for high density plantings. M9-337 is a virus certified clone of the original Malling 9 and has been used successfully throughout the world. Trees on M9-337 are very precocious and tolerant to a wide range of soil and climate conditions. Due to the poor anchorage of this rootstock, tree support is essential in establishing trees.



M9-NIC 29

A selection of Malling 9 developed in Belgium. M9-Nic29 is recommended for use with cultivars that are less vigorous such as Empire or Honeycrisp. M9-Nic29 has slightly more vigor than other clones of Malling 9 yet is similar in other horticultural characteristics.



Apple rootstocks: <http://www.acnursery.com/rootstock.php>
(also see other nursery lists and references)



Strawberries

- June bearing - traditional strawberry matted row production, harvested in May/June time frame. Wide range of maturities could allow extended harvest of 5-6 weeks or more
- Everbearing - harvest fluctuates throughout year, from individual plants not allowed to runner, until frost ends season. Very similar total yields to June bearing
- Plasticulture - higher management system, berries planted in the fall on raised plastic beds, harvest the next season, beginning several weeks earlier than June bearing plantings
- High-tunnel production ... what varieties are best suited?

Sweet Corn

- Many types of sweet corn, varying in sugar/starch content, insect and herbicide tolerance, maturity, color, etc.
- Standard, sugary enhanced (SE), shrunken (SH2), and combinations
- Yellow, white, bicolor
- GMO traited - *Attribute* insect protection, *Performance* insect/herbicide protection
- Consider resistance to Stewart's wilt (bacterial disease transmitted by corn flea beetles)
- To prevent starchy, tough kernels, isolate supersweets (SH2) from SE types by at least 100 ft. in commercial plantings or by a 10-day difference in silking dates.

Tomatoes

- Wide range of maturities, color, sizes, acidity, etc.
- Heirloom (open pollinated)
- Hybrid
- Globe (round), beefsteak (large), cherry, Roma, pear, plum, grape
- Consider disease resistance (V,F,N, ... and more)



Evaluating plant performance on your farm ... observe and record

- Germination
- Plant stand
- Insect and disease occurrence
- Dates of harvest
- Yield by date
- Percent culls
- Market price, total sales, unsold compost

Consider cultural practices when choosing crops, varieties, and cultivars.

- Location, including drainage
- Soil types: pH, sandy soil, clay soil, loamy soil
- Layout of site
- Rotation
- Planting method – direct seed or transplant
- Pest management



Resources

- Seed and nursery catalogs
 - Seed suppliers include Johnny's, Siegers, Seedway, Rispens, Rupp, Stokes, and more
 - Fruit nurseries include Stark's, Adams County, Moser Fruit Tree Sales (including Grandpa's Orchard), Raintree, Van Well, Cummins, Nourse, Indiana Berry, and more

To reach us

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If you have questions ...

- University of Illinois Extension Local Food Systems and Small Farms team
 - <http://web.extension.illinois.edu/smallfarm/>
- USDA's Start2Farm site
 - <http://www.start2farm.gov/>