#### **MSU Extension Publication Archive**

Archive copy of publication, do not use for current recommendations. Up-to-date information about many topics can be obtained from your local Extension office.

Planning a Vegetable Garden Michigan State University Extension Service Vegetable Tips J. Lee Taylor, Department of Horticulture Issued June 1985 12 pages

The PDF file was provided courtesy of the Michigan State University Library

Scroll down to view the publication.

# Wegetable 35 Tips

Extension Bulletin E-1769 June 1985 (New) 50¢ Cooperative Extension Service Michigan State University

## Planning A Vegetable Garden

J. Lee Taylor Department of Horticulture

So, you've decided to have a garden. Congratulations. Individuals in over half the households in Michigan are involved in gardening in one form or another. Some people garden for the fun of it, others because they enjoy harvesting fresh vegetables that aren't carried in local groceries or supermarkets. Many individuals garden to save money while others garden for the therapeutic benefits. For whatever reason, this bulletin will help get gardening activity underway. For additional information on home gardening, see Extension Bulletins E-529, Home Vegetable Gardening; E-760a, Home Vegetable Garden Variety Recommendations; E-760b, Home Vegetable Garden Disease. Insect and Weed Control; and the Family Vegetable Garden Series of leaflets E-824. These and other extension bulletins are available from your local county extension office.

After deciding to have a garden, decisions have to be made about varieties of vegetables to plant, how much, when, where and what to do with seeds left over from last year. With experience, many of these decisions will be much easier to make, so don't get discouraged.

#### What To Plant

This usually depends on available space, family preferences, and experience. The vegetables listed in the VEGETABLE PLANNING CHART (Table 1) are divided into five groups for both cool and warm season vegetables starting with the small or inexperienced gardener (left

column) and gradually expanding (both in size of garden and kinds of vegetables grown) to a large garden (right column). Actual size could vary from less than 20 square feet to more than 1,000 square feet. Inexperienced gardeners or gardeners with limited space usually grow salad-type vegetables. As they gain experience or acquire more space they grow the more popular vegetables. Most of the vegetables and herbs listed in the two righthand columns aren't necessarily more difficult to grow, such as Chinese cabbage, parsley, rhubarb or Jerusalem artichoke, they just aren't as popular and some require considerable space.

#### When To Plant

Most vegetables are either cool or warm season crops. Cool season vegetables grow best during the cooler temperatures of spring or fall and can withstand some frost or freezing temperatures, particularly when young. Some, such as onions, peas and spinach, are very hardy and can be planted as soon as the ground can be worked in the spring. This is usually late March or early April in southern Michigan and 1-3 weeks later further north. Fall garden plantings should generally be made in July.

Warm season crops, such as cucumber, melons, squash, peppers and tomatoes are sensitive to cool temperatures and will be killed by frost. They cannot be safely planted outdoors until the danger of frost is past unless they are placed under hot caps, tents or covers. Seeds of warm season crops germinate poorly in cool soil and may rot in wet soil if planted too early. Early varieties of sweet corn can usually be planted a couple of weeks ahead of other warm season vegetables since they aren't quite as tender and seedlings will have some protection by the surrounding soil until they emerge from the ground.

Follow directions in this bulletin or on seed packets for the proper time to plant and don't be afraid to gamble with a few seeds. If a few seedlings or plants aren't lost to frost in the spring, they probably weren't planted early enough.

The map showing average date of last temperature of 32 °F or lower in the spring can be used to help determine planting dates for spring and summer gardens. The other map, average date of first temperature of 32°F or lower in the fall, can be used for planning late or fall gardens. The average dates refer to those dates when there is a 50% probability of temperature of 32 °F or lower occurring on or after that date in spring (Table 2), or a 50% probability of temperaure of 32 °F or lower occurring on or before that date in fall (Table 3).

For an example, in Jackson County the last date for the temperature of 32°F in the spring is between April 30 and May 10. Table 2 shows that the actual date is May 8. Also from the table it can be determined when the last chance of 32°F or lower temperature is apt

		TABLE 1. VEGET	ABLE PLANNING CH	HART	
	Beginning or Patio Gardener	Small Gardener (add)	General Garden (add)	Serious Gardener (add)	Confirmed Gardene (add)
Cool Season Crops	Lettuce (leaf & bibb) Onions	Carrots Peas Radishes	Beets Broccoli Brussels Sprouts Cabbage Cauliflower Parsnips Spinach Swiss Chard Turnip	Celeriac Chinese Cabbage Chives Collards Dill Kale Kohlrabi Lettuce (head) Parsley Potato Rutabaga	Asparagus (perennial) Celery Garlic Horseradish Mustard Rhubarb (perennial) Salsify
Warm Season Crops	Cucumber (bush) Squash (summer) Tomato	Beans, snap Cucumber (vine) Peppers Tomatoes (cherry, paste)	Beans, lima Eggplant Muskmelons Okra Pumpkins (bush) Squash, winter Sweet Corn	Pumpkins Watermelons Tomatoes (yellow)	Jerusalem Artichoke Pop Corn Sweet Potato Soybeans

to occur as well as other probabilities. These probabilities and dates can be of use in determining when to plant warm season transplants such as tomatoes. For no chance of frost, set the plants in the garden on May 31 in Jackson County. To gamble a little and perhaps get ripe tomatoes up to 15 days earlier, transplant them on May 21 for a 10% chance of temperatures 32°F or lower or on May 15 for a 25% chance of temperature 32°F or lower. There are, of course, differences in sites, elevation and local weather conditions, but information in these maps and tables should help make planning easier.

#### Direct Seeding vs Transplanting

Although seeds of most vegetables are sown directly where they will grow and mature in a garden, it is usually desirable to transplant seedlings of some vegetables to the garden. Using trans-

plants will result in an earlier harvest, a longer harvesting period and will not tie up garden space as long (especially important if space is limited).

Seedlings of the following vegetables are commonly transplanted:

Warm Season Vegetables
(commonly transplanted after
most danger of frost is past)
Tomato
Pepper
Eggplant
Melons Not as easily
Cucumbers transplanted

Cool Season Vegetables
(can withstand some frost and freezing temperatures)
Cabbage
Broccoli
Cauliflower
Brussels Sprouts
Head Lettuce

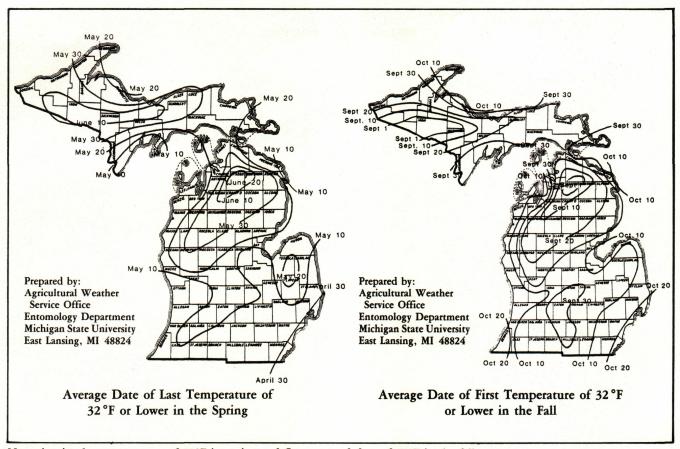
Even by using transplants, most gardeners find it difficult to get tomatoes to ripen much before early August in southern lower Michigan, except for early varieties. You can usually buy better quality transplants than you can grow yourself. The main advantage of producing your own is that you grow the varieties you want. Determine early

any transplants that will be purchased, since there will be no need to purchase seeds of those varieties.

For a fall or late garden, seeds of the cool season crops listed above may be sown in the garden in small seed beds and then transplanted to their final location where they will mature during the cool months of fall such as September, October, and perhaps November.

### Where to Locate the Garden

Garden location is very important. It should be nearby to enjoy watching the plants grow. It should also be close to water, in full sunlight, and have good, well-drained soil. It does not have to be located in the backyard nor does it have to be all in one place. Many vegetables can be combined with or used in place of flowers in beds or for borders. Some that work well are bush and pole beans, beets, Swiss chard, cabbage, bush cucumbers and squash, eggplant, kale, lettuce, leeks, okra, parsley,



Maps showing last temperature of 32°F in spring and first expected days of 32°F in the fall.

peas, peppers, spinach and tomatoes. Perennial vegetables such as asparagus and rhubarb can be planted in the yard, especially the front or side, and be used for landscaping and eating.

The site should be satisfactory if a good crop of grass or weeds grows on it. It should not be close to trees since their roots may extend far beyond the outermost branches and will compete with garden plants for moisture and nutrients.

The garden can be broken into several small beds. It could also be in a container on a patio, balcony or porch. It could be located in a community garden plot at a church, school, park or other site. The garden may be split if space is limited and the smaller vegetables grown at home and the larger ones such as sweet corn and vine crops somewhere else such as a rented plot. In general, the further away from the residence that the garden is located, the less time for enjoying the plants and watching them grow

and mature. Vandalism is usually more of a problem when gardens are grouped together.

#### How Much to Plant

The amount of each vegetable to plant depends mainly on the number of individuals that the garden is to feed and whether or not vegetables will be eaten fresh, stored, canned, frozen or dried. How much to plant is also influenced by family preference, space available, vacation schedules and planting and tillage methods. Weeding, watering, pest control, harvesting and general garden chores take much more time than planting the seeds or transplants. Start small and enlarge the garden size as more is learned about cultural techniques and the time required to maintain a garden. The average garden size is between 500 and 1,000 square feet, but smaller gardens or a container garden can be very rewarding, both in enjoyment and productivity.

THE VEGETABLE PRODUC-TION CHART (Table 4) is helpful in determining how much to plant of those vegetables that your family likes to eat and has space to grow. Gardeners with limited space should look at the last column which gives the approximate yield per 100 square feet and may be used to help determine the relative productivity of various vegetables. For example, snap beans are about seven times as productive as lima beans so if space is a problem, lima beans probably should not be grown.

#### Successive Plantings

Vegetables can be harvested over a longer period of time if successive

Station	First	95%	90%	75%	50%	25%	10%	5%	Last
Adrian	Apr 16	Apr 18	Apr 21	Apr 27	May 3	May 9	May 15	May 19	May 23
Allegan	Apr 15	Apr 16	Apr 20	Apr 28	May 6	May 14	May 22	May 26	June 12
Alma	Apr 18	Apr 24	Apr 27	May 3	May 10	May 17	May 23	May 26	May 27
lpena WSO	May 3	May 10	May 14	May 22	May 31	June 8	June 16	June 21	June 21
lpena	Apr 18	Apr 20	Apr 24	May 1	May 8	May 15	May 22	May 26	May 29
inn Arbor	Apr 10	Apr 12	Apr 16	Apr 22	Apr 29	May 6	May 12	May 16	May 27
itlanta	May 2	May 11	May 16	May 24	June 2	June 11	June 19	June 24	July 6
Bad Axe	Apr 20	Apr 27	May 1	May 8	May 15	May 22	May 29	June 2	June 8
Battle Creek	Apr 16	Apr 19	Apr 22	Apr 28	May 5	May 11	May 17	May 21	May 27
Bay City	Apr 13	Apr 14	Apr 18	Apr 25	May 2	May 9	May 15	May 19	May 26
Big Rapids	May 2	May 4	May 8	May 13	May 20	May 26	June 1	June 4	June 12
Bloomingdale	Apr 17	Apr 19	Apr 24	May 1	May 10	May 19	May 26	May 31	June 12
Cadillac	May 9	May 4	May 11 May 8	May 21	June 1	June 12 May 31	June 23 June 7	June 29 June 12	July 11 June 22
Caro	Apr 23	May 4		May 15 May 5	May 23 May 13			June 2	June 1:
Charlotte	Apr 17 May 17	Apr 24 May 18	Apr 28 May 24	May 5 June 1	May 13 June 11	May 21 June 21	May 29 June 30	July 5	July 3
Chatham				May 10	May 17	May 24	May 31	June 4	June 2
Cheboygan RR		Apr 30 Apr 18		Apr 29	May 7	May 14	May 21	May 25	May 2
Coldwater St. Hosp Detroit City	Apr 7	Apr 10	Apr 22 Apr 13	Apr 18	Apr 24	Apr 30	May 5	May 8	May 1
etroit Metro	Apr 12	Apr 14	Apr 18	Apr 25	May 3	May 11	May 18	May 23	May 2
East Jordan	May 10	May 11	May 15	May 22	May 30	June 6	June 13	June 17	June 2:
East Tawas	Apr 29	May 3	May 7	May 14	May 22	May 30	June 7	June 11	June 1
Cau Claire	Apr 8	Apr 16	Apr 19	Apr 25	May 2	May 9	May 15	May 18	May 2
Escanaba	Apr 24	Apr 27	Apr 30	May 5	May 11	May 17	May 22	May 25	May 3
ayette	Apr 26	Apr 29	May 3	May 9	May 16	May 23	May 29	June 2	June
ife Lake	May 9	May 15	May 20	May 29	June 7	June 17	June 25	June 30	July
lint	Apr 18	Apr 22	Apr 26	May 2	May 8	May 15	May 21	May 25	May 2
Frankfort	Apr 16	Apr 27	May 2	May 10	May 18	May 26	June 3	June 7	June 2
Gladwin	May 4	May 2	May 6	May 13	May 20	May 28	June 3	June 7	June 2
Grand Haven	Apr 7	Apr 16	Apr 19	Apr 25	May 1	May 8	May 14	May 17	May 1
Grand Marais	May 7	May 7	May 13	May 23	June 4	June 15	June 25	June 30	July 2
Grand Rapids	Apr 10	Apr 13	Apr 18	Apr 24	May 2	May 10	May 17	May 21	May 2
Grayling	May 2	May 7	May 12	May 21	May 31	June 10	June 19	June 24	July 2
Greenville	Apr 13	Apr 19	Apr 23	May 1	May 9	May 18	May 26	May 30	June 1
Gull Lake	Apr 20	Apr 22	Apr 25	May 1	May 7	May 13	May 19	May 22	May 2
lale Loud Dam	May 3	May 6	May 10	May 16	May 23	May 30	June 6	June 9	June 20
larbor Beach	Apr 8	Apr 21	Apr 25	May 2	May 9	May 16	May 23	May 26	May 26
larrisville	Apr 27	May 1	May 6	May 14	May 23	June 1	June 9	June 14	June 25
lart	Apr 24	May 2	May 6	May 12	May 20	May 27	June 3	June 7	June 13
lastings	Apr 20	Apr 25	Apr 29	May 6	May 13	May 21	May 27	May 31	June 12
lillsdale	Apr 20	Apr 22	Apr 27	May 4	May 12	May 20	May 28	June 1	June 12
lolland	Apr 15	Apr 16	Apr 12	Apr 29	May 8	May 17	May 25	May 30	June 12
loughton	May 8	May 4	May 8	May 15	May 23	May 31	June 6	June 11	July 10
loughton Lake	Apr 28	May 5	May 12	May 22	June 2	June 14	June 24	June 30	July 20
ron Mountain	May 10	May 13	May 16	May 23	May 30	June 6	June 12	June 16	June 22
ronwood	May 4	May 7	May 11	May 17	May 24	May 31	June 6	June 9	June 1
shpeming	May 11	May 11	May 15	May 21	May 28	June 4	June 10	June 14	June 18
ackson	Apr 17	Apr 21	Apr 25	May 1	May 8	May 15	May 21	May 25	May 31
alamazoo St. Hosp		Apr 16	Apr 20	Apr 26	May 3	May 11	May 17	May 21	May 27
ake City	May 7	May 4	May 10	May 19	May 29	June 8	June 17	June 23	July 11
ansing	Apr 13	Apr 18	Apr 22	Apr 30	May 8	May 17	May 25	May 29	June 12
apeer	Apr 16	Apr 23	Apr 28	May 5	May 14	May 23	May 30	June 4	June 8
udington	Apr 17	Apr 21	Apr 26	May 4	May 13	May 22	May 30	June 4	June 14
anistee	Apr 18	Apr 23	Apr 26	May 3	May 11	May 18	May 24	May 28	May 31
arquette WSO idland	Apr 21	Apr 29	May 2	May 7	May 13	May 19	May 24	May 27	May 29
ilford	Apr 7	Apr 17	Apr 21	Apr 30	May 8	May 17	May 26	May 30	June 12
io	Apr 13 May 3	Apr 21 May 12	Apr 25	May 1	May 8	May 15	May 21	May 25	May 30
onroe	May 3 Apr 8	May 12 Apr 10	May 16	May 24	June 1	June 10	June 17	June 22	June 21
t. Clemens	Apr 8	Apr 8	Apr 13 Apr 12	Apr 19	Apr 26	May 2	May 8	May 12	May 13
t. Pleasant	Apr 26	Apr 29		Apr 19	Apr 27	May 5	May 12	May 16	May 23
unising	May 17	May 23	May 2 May 27	May 8 June 2	May 14 June 10	May 21	May 27	May 30 June 28	May 30
uskegon	Apr 14	Apr 17	Apr 21	Apr 28	May 6	June 17	June 24 May 21	May 25	July 4
ewago	Apr 24	May 6	May 10	May 18	May 26	May 14 June 3	June 11	June 15	June 12 June 22
ewberry	May 5	May 9	May 13	May 19	May 26	June 2	June 9	June 13	June 18
naway	May 3	May 6	May 10	May 17	May 25	June 1	June 8	June 12	June 15
wosso	Apr 19	Apr 25	Apr 29	May 5	May 12	May 19	May 25	May 29	May 30
aw Paw	Apr 20	Apr 23	Apr 27	May 4	May 11	May 19	May 26	May 30	June 12
ontiac	Apr 17	Apr 20	Apr 23	Apr 30	May 6	May 13	May 19	May 23	May 25
ort Huron	Apr 13	Apr 13	Apr 17	Apr 25	May 3	May 11	May 18	May 22	June S
aginaw FAA	Apr 10	Apr 16	Apr 20	Apr 27	May 4	May 11	May 18	May 21	May 28
ault St. Marie	Apr 23	May 3	May 7	May 14	May 22	May 29	June 5	June 9	June 21
outh Haven	Apr 15	Apr 17	Apr 21	Apr 26	May 3	May 9	May 14	May 18	May 23
hree Rivers	Apr 15	Apr 20	Apr 24	Apr 30	May 8	May 15	May 21	May 25	May 29
raverse City	May 3	May 2	May 7	May 15	May 23	June 1	June 8	June 13	July 6
anderbilt II	May 22	May 26	May 31	June 10	June 20	June 30	July 10	July 16	July 31
est Branch	May 7	May 7	May 12	May 19	May 27	June 4	June 11	June 15	June 18
						the state of the s	THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER.	The state of the s	

Bay City Nov 9 Nov 6 Nov 1 Oct 25 Oct 16 Oct 8 Sept 30 Sept 25 Sept 20 Big Rapids Oct 18 Oct 13 Oct 9 Oct 3 Sept 26 Sept 19 Sept 12 Sept 8 Sept 21 Big Rapids Oct 30 Oct 28 Oct 17 Oct 10 Sept 28 Sept 19 Sept 12 Sept 19 Sept 18 Cadillac Oct 30 Oct 17 Oct 10 Sept 28 Sept 15 Sept 2 Aug 21 Aug 14 Aug 14 Aug 16 Caro Oct 15 Oct 11 Oct 7 Oct 10 Sept 28 Sept 15 Sept 2 Aug 21 Aug 14 Aug 14 Aug 11 Oct 7 Oct 10 Sept 28 Sept 15 Sept 2 Sept 18 Sept 12 Sept 8 Sept 13 Sept 14 Sept 18 Sept 12 Sept 8 Sept 13 Sept 14 Sept 18 Sept 12 Sept 8 Sept 13 Sept 14 Sept 18 Sept 12 Sept 8 Sept 15 Sept 14 Sept 18 Sept 12 Sept 8 Sept 19 Sept 18 Sept 12 Sept 18 Sept 14 Sept 18 Sept 12 Sept 18 Sept 12 Sept 18 Sept 18 Sept 12 Sept 18 Sept 18 Sept 12 Sept 18 Sept 19 Sept 18 Sept 18 Sept 18 Sept 18 Sept 19 Sept 18 Sept 18 Sept 18 Sept 19 Sept 18 S	Station	Last	95%	90%	75%	50%	25%	10%	5%	First
Allagam Nov 1 Oct 26 Oct 27 Oct 16 Oct 8 Sapt 30 Sapt 24 Sapt 19 Sapt 26 Name Allama Nov 1 Oct 24 Oct 20 Oct 13 Oct 6 Sapt 23 Sapt 26 Sapt 27 Sapt 17 Sapt 17 Sapt 17 Sapt 17 Sapt 17 Sapt 17 Sapt 18 Sapt 28 Sapt 28 Sapt 29	Adrian	Oat 27	Oat 25	Oat 21	0-4 15	0-4 8	0-4 1	C 2/	C 21	S 17
Name									•	•
								The state of the s		
			_			_				
Number							-			
stantama Oct 7 Oct 5 Sept 30 Sept 23 Sept 15 Sept 7 Aug 30 Aug 26 Aug 12 Sept 18 Sept 17 Sept 8 Sept 18 Sept 19 Sept 18 Sept 1										
		_					_			
matrie Creek Nov 5 Oct 29 Oct 25 Oct 17 Oct 8 Sept 29 Sept 12 Sept 16 Sept 26 Sept 13 Sept 26 Sept 14 Sept 26 Sept 14 Sept 26 Sept 14 Sept 26 Sept 18 Sept 27 Sept 26 Sept 18 Sept 27 Sept 26 Sept 27 Sept 26 Sept 27 Sept 26 Sept 27 Sept 26 Sept 27 Sept 28 Sept 18 Sept 28	Bad Axe	Nov 7	Oct 30				•	The state of the s		
Now   9	Battle Creek	Nov 5	Oct 29						-	
148 Rapids	Bay City	Nov 9	Nov 6	Nov 1	Oct 25		_			
	ig Rapids	Oct 18	Oct 13	Oct 9	Oct 3	Sept 26	Sept 19			
Sept   1	Bloomingdale	Oct 30	Oct 28	Oct 24	Oct 17	Oct 9	Oct 1	Sept 23	Sept 19	Sept 18
Sept	Cadillac	Oct 30	Oct 17	Oct 10	Sept 28	Sept 15	Sept 2	Aug 21	Aug 14	Aug 1
Natham					Oct 1	Sept 24	Sept 18	Sept 12	Sept 8	Sept 3
Cheboysan Nov 4 Nov 1 Oct 27 Oct 17 Oct 7 Sept 27 Sept 18 Sept 18 Sept 12 Aug 22 Locidwater St. Hosp Oct 26 Oct 27 Oct 19 Oct 12 Oct 4 Sept 27 Sept 18 Sept 18 Sept 16 Sept 16 Sept 16 Sept 16 Sept 16 Sept 16 Sept 17 Oct 18 Sept 16 Sept 17 Sept 18									Sept 12	Sept 6
Description					Sept 23		Sept 5	Aug 27		
Derrott City Nov 15 Nov 11 Nov 7 Oct 31 Oct 23 Oct 15 Oct 8 Oct 4 Sept 27 Sept 32 Sept 22 Sept 16 Sept 3 Sept 27 Sept 23 Sept 32 Sept										
Detroit Metro								_		
Sast Jordan										
Tast Tawas										
Searchard										
Secanda						•		-		_
Payette										
Part   Part   Nov   6										
Prankfort   Nov 8										
Sept										
Strand Harst Nov   14   Nov   5   Oct   31   Oct   23   Oct   14   Oct   5   Sept   27   Sept   23   Sept   27   Sept   23   Sept   27   Sept   23   Sept   24   Sept   14   Sept   24   Sept   25   Sept   27   Sept   28   Sept   29	Gladwin	Oct 14		Oct 9	Oct 2	**				
Strand Rapids	Grand Haven	Nov 14	Nov 5	Oct 31	Oct 23					
Stayling	Grand Marais	Nov 25	Nov 11	NOv 2	Oct 18	Oct 2	Sept 15	Aug 31	Aug 23	Aug 3
Steenwille	Grand Rapids	Nov 29	Nov 12	Nov 6	Oct 28	Oct 17	Oct 6	Sept 27	Sept 21	Sept 21
Sall Lake						Sept 17	Sept 8		Aug 27	Aug 7
Separate							Sept 27	Sept 22	Sept 19	
Sarbor   Bach   Nov   4	Gull Lake	Nov 7	Oct 25	Oct 21	Oct 14	Oct 6	Sept 29	Sept 21	Sept 17.	Sept 13
Sept 14	Hale Loud Dam	Oct 23	Oct 11	Oct 8	Oct 2	Sept 27	Sept 21	Sept 15	Sept 12	Sept 2
Hart	Harbor Beach	Nov 4	Nov 1	Oct 28	Oct 22	Oct 15	Oct 8	Oct 2	Sept 29	Sept 23
Hastings	darrisville					Sept 30	Sept 22	Sept 15	Sept 11	Sept 11
Hillsdale Oct 25 Oct 20 Oct 15 Oct 8 Sept 30 Sept 22 Sept 14 Sept 10 Sept 31 Oct 10 Oct 10 Oct 10 Sept 30 Sept 21 Sept 10 Sept 31 Oct 24 Oct 28 Oct 20 Oct 10 Sept 30 Sept 21 Sept 16 Sept 11 Oct 10 Oct 1 Sept 30 Sep									Sept 9	Sept 1
Solid   Nov   7										
Soughton									Sept 10	Sept 3
Soughton Lake										Sept 11
Iron Mountain										
Ironwood							_			
Cashpeming										
Cackson										
Alamazoo St.Hosp Nov 5 Oct 31 Oct 26 Oct 19 Oct 10 Oct 2 Sept 24 Sept 20 Sept 20 Aske City Oct 9 Oct 3 Sept 30 Sept 24 Sept 17 Sept 10 Sept 4 Sept 1 Aug 28 Aug 21 Oct 9 Oct 12 Oct 19 Oct 11 Oct 1 Sept 22 Sept 18 Sept 13 Aug 28 Aug 29 Oct 14 Oct 10 Oct 1 Sept 20 Sept 14 Sept 10 Sept 30 Aug 29 Oct 14 Oct 10 Oct 1 Sept 20 Sept 18 Sept 10 Sept 30 Aug 29 Oct 14 Oct 10 Oct 1 Sept 20 Sept 28 Sept 10 Sept 10 Sept 30 Aug 29 Oct 14 Oct 10 Oct 1 Sept 20 Sept 16 Sept 10 Sept 30 Aug 29 Oct 14 Oct 10 Oct 1 Sept 20 Sept 16 Sept 10 Sept 30 Aug 29 Oct 14 Oct 10 Oct 11 Oct 3 Sept 20 Sept 16 Sept 10 Sept 30 Aug 29 Oct 14 Oct 10 Oct 11 Oct 3 Sept 20 Sept 10 Sept 30 Oct 30 Oct 24 Oct 20 Oct 14 Oct 10 Oct 11 Oct 3 Sept 29 Sept 16 Sept 10 Sept 30 Oct 30 Oct 24 Oct 20 Oct 14 Oct 10 Oct 11 Oct 3 Sept 29 Sept 26 Oct 10 Oct 11 Oct 3 Sept 29 Sept 26 Oct 10 Oct 11 Oct 3 Sept 29 Sept 20 Sept 10 Sept 30 Oct 30 Oct 26 Oct 19 Oct 11 Oct 3 Sept 29 Sept 20 Sept 10 Sept 30 Oct 30 Oct 30 Oct 26 Oct 19 Oct 11 Oct 3 Sept 20 Sept 10 Sept 30 Oct 30									•	
Aske City Oct 9 Oct 3 Sept 30 Sept 24 Sept 17 Sept 10 Sept 4 Sept 1 Aug 28 Augustansing Oct 27 Oct 22 Oct 19 Oct 12 Oct 5 Sept 28 Sept 22 Sept 18 Sept 10 Sept 3 Augustansing Oct 27 Oct 22 Oct 17 Oct 10 Oct 1 Sept 28 Sept 22 Sept 18 Sept 10 Sept 3 Augustansing Oct 24 Nov 10 Nov 4 Oct 25 Oct 13 Oct 2 Sept 22 Sept 16 Sept 13 Augustansing Oct 24 Nov 10 Nov 4 Oct 25 Oct 13 Oct 2 Sept 22 Sept 16 Sept 13 Augustansing Oct 28 Nov 8 Nov 7 Nov 3 Oct 26 Oct 19 Oct 11 Oct 3 Sept 29 Sept 26 Sept 18 Sept 13 Augustansing Oct 24 Oct 20 Oct 14 Oct 6 Sept 29 Sept 26 Sept 21 Sept 30 Oct 24 Oct 20 Oct 14 Oct 6 Sept 29 Sept 26 Sept 18 Sept 17 Sept 10 Sept 28 Sept 29 Sept 20 Sept 30 Sept 20 Sept 20 Sept 30 Sept 20 Sept 30 Sept 20 Sept 30 S		_								
Amsing Oct 27 Oct 22 Oct 19 Oct 12 Oct 5 Sept 28 Sept 22 Sept 18 Sept 13 Amseer Nov 6 Oct 22 Oct 17 Oct 10 Oct 1 Sept 22 Sept 15 Sept 10 Sept 3 Amseer Nov 10 Nov 4 Oct 25 Oct 13 Oct 2 Sept 22 Sept 16 Sept 13 Amsistee Nov 10 Nov 6 Nov 1 Oct 23 Oct 14 Oct 4 Sept 26 Sept 16 Sept 13 Amsistee Nov 10 Nov 6 Nov 1 Oct 23 Oct 14 Oct 4 Sept 26 Sept 21 Sept 18 Sept 16 Sept 13 Sept 10 Nov 10 Nov 5 Oct 24 Oct 20 Oct 14 Oct 6 Sept 29 Sept 26 Sept 21 Sept 18 Sept 17 Sept 18 Sept 18 Sept 17 Sept 18 Sept 18 Sept 18 Sept 19 Sept 18 Sept 18 Sept 19 Sept 18 Sept 19 Sept 18 Sept 18 Sept 19 Sept 18 Sept 19 Sept 18 Sept 18 Sept 18 Sept 19 Sept 18 Sept 18 Sept 19 Sept 18 Sept 18 Sept 18 Sept 19 Sept 18 Sept 18 Sept 18 Sept 18 Sept 19 Sept 18 Sept 18 Sept 18 Sept 18 Sept 18 Sept 19 Sept 18 Sept 19 Sept 18 Sept 19 Sept 18 Sept 18 Sept 18 Sept 19 Sept 18 Sept 18 Sept 18 Sept 18 Sept 18 Sept 19 Sept 18 Sept 1										
Lapeer				0-4 10	0-+ 12	0 - t E	0 20	C+ 22	C 10	0 . 12
Addington  Nov 24  Nov 10  Nov 6  Nov 1 Oct 25  Oct 13 Oct 2  Sept 22  Sept 16  Sept 13  Addinstee  Nov 10  Nov 6  Nov 1 Oct 23  Oct 14  Oct 4  Sept 26  Sept 21  Sept 26  Agent 27  Sept 28  Sept 29  Sept 26  Sept 29  Sept 29  Sept 26  Sept 29  Sept 29  Sept 26  Se	apeer						The state of the s			
Manistee Nov 10 Nov 6 Nov 1 Oct 23 Oct 14 Oct 4 Sept 26 Sept 21 Sept 3 Augustee WSO Nov 8 Nov 7 Nov 3 Oct 26 Oct 19 Oct 11 Oct 3 Sept 29 Sept 26 Moldland Nov 5 Oct 24 Oct 20 Oct 14 Oct 6 Sept 29 Sept 22 Sept 18 Sept 17 Moldland Nov 5 Oct 24 Oct 20 Oct 19 Oct 11 Oct 3 Sept 29 Sept 22 Sept 18 Sept 17 Moldland Nov 5 Oct 26 Oct 19 Oct 11 Oct 3 Sept 26 Sept 21 Sept 26 Moldland Nov 9 Nov 7 Nov 3 Oct 27 Oct 20 Oct 13 Oct 6 Oct 2 Sept 28 Moldland Nov 9 Nov 7 Nov 3 Oct 27 Oct 20 Oct 13 Oct 6 Oct 2 Sept 28 Moldland Nov 1 Oct 19 Oct 11 Oct 4 Sept 29 Sept 24 Moldland Nov 1 Oct 19 Oct 15 Oct 9 Oct 19 Oct 11 Oct 4 Sept 29 Sept 24 Moldland Nov 1 Oct 19 Oct 15 Oct 9 Oct 2 Sept 28 Sept 19 Sept 15 Sept 14 Moldland Nov 1 Oct 19 Oct 15 Oct 9 Oct 15 Oct 4 Sept 25 Sept 19 Sept 15 Sept 14 Moldland Nov 1 Oct 10 Oct 6 Sept 30 Sept 23 Sept 25 Sept 19 Sept 15 Sept 18 Nov 10 Oct 10 Oct 6 Sept 30 Sept 23 Sept 16 Sept 10 Sept 2 Aug 29 Aug 21 Nov 10 Oct 16 Oct 11 Oct 4 Sept 25 Sept 18 Sept 10 Sept 2 Aug 29 Aug 21 Nov 10 Oct 15 Oct 11 Oct 4 Sept 25 Sept 18 Sept 10 Sept 2 Aug 29 Aug 21 Nov 10 Oct 15 Oct 11 Oct 4 Sept 25 Sept 18 Sept 10 Sept 2 Aug 29 Aug 21 Nov 10 Oct 16 Oct 11 Oct 4 Sept 25 Sept 18 Sept 10 Sept 2 Aug 29 Aug 21 Nov 10 Oct 15 Oct 10 Oct 2 Sept 28 Sept 18 Sept 10 Sept 6 Sept 30 Nov 10 Oct 15 Oct 11 Oct 4 Sept 26 Sept 18 Sept 10 Sept 7 Sept 30 Nov 10 Oct 18 Oct 11 Oct 2 Sept 25 Sept 18 Sept 11 Sept 7 Sept 30 Nov 10 Oct 18 Oct 14 Oct 8 Oct 1 Sept 25 Sept 19 Sept 15 Sept 18 Sept 10 Sept 15 Sept 14 Sept 10 S										
Marquette WSO         Nov         8         Nov         7         Nov         3         Oct         26         Oct         19         Oct         11         Oct         3         Sept         29         Sept         26           fidland         Nov         5         Oct         24         Oct         20         Oct         14         Oct         6         Sept         29         Sept         28         Sept         17           filo         Oct         6         Oct         1         Sept         28         Sept         21         Sept         28         Sept         21         Sept         28         Sept         21         Sept         28         Sept         21         Sept         26         Sept         1         Aug         29         Aug         21           fino         Oct         2         Nov         3         Oct         2         Oct         10         Oct         10         Oct         2         Sept         28         Sept         11         Oct         4         Aug         29         Aug         21           fit         Pleasant         Nov         1         Oct         19										
Hidland         Nov         5         Oct         24         Oct         20         Oct         14         Oct         6         Sept         29         Sept         22         Sept         18         Sept         17           Hilford         Nov         3         Oct         30         Oct         26         Oct         19         Oct         11         Oct         3         Sept         26         Sept         21         Sept         15         Sept         28         Sept         11         Oct         3         Sept         21         Sept         29         Aug         21         Sept         28         Sept         1         Aug         29         Aug         21         Sept         28         Sept         21         Sept         28         Nov         3         Oct         27         Oct         20         Oct         13         Oct         4         Sept         28         25         Sept         28         Sept         28         25         Sept         28         Sept         28         25         Sept         29         Sept         28         25         Sept         29         Sept         24         28										
## Action of the content of the cont										
Atio Oct 6 Oct 1 Sept 28 Sept 21 Sept 15 Sept 8 Sept 1 Aug 29 Aug 21 Monroe Nov 9 Nov 7 Nov 3 Oct 27 Oct 20 Oct 13 Oct 6 Oct 2 Sept 28 Mt. Clemens Nov 12 Nov 8 Nov 4 Oct 28 Oct 19 Oct 11 Oct 4 Sept 29 Sept 24 Mt. Clemens Nov 1 Oct 19 Oct 15 Oct 9 Oct 2 Sept 25 Sept 19 Sept 15 Sept 14 Minising Oct 21 Oct 9 Oct 4 Sept 27 Sept 18 Sept 10 Sept 2 Aug 29 Aug 21 Muskegon Nov 25 Nov 8 Nov 3 Oct 25 Oct 15 Oct 4 Sept 25 Sept 20 Sept 8 Newsgo Oct 14 Oct 10 Oct 6 Sept 30 Sept 23 Sept 16 Sept 10 Sept 6 Sept 30 Newberry Nov 1 Oct 16 Oct 11 Oct 4 Sept 26 Sept 18 Sept 11 Sept 7 Sept 3 Nov 8 Nov 1 Oct 15 Oct 10 Oct 2 Sept 24 Sept 15 Sept 11 Sept 7 Sept 3 Nov 8 Nov 1 Oct 16 Oct 11 Oct 4 Sept 26 Sept 18 Sept 11 Sept 7 Sept 3 Nov 8 Nov 1 Oct 16 Oct 11 Oct 2 Sept 24 Sept 15 Sept 11 Sept 7 Sept 3 Nov 8 Nov 1 Oct 18 Oct 14 Oct 8 Oct 1 Sept 25 Sept 19 Sept 15 Sept 14 Sept 16 Nov 8 Nov 5 Oct 31 Oct 27 Oct 20 Oct 12 Oct 4 Sept 26 Sept 19 Sept 15 Sept 14 Sept 13 Nov 8 Nov 5 Oct 31 Oct 27 Oct 20 Oct 13 Oct 6 Sept 29 Sept 25 Sept 20 Sept 18 Sept 14 Sept 13 Sept 14 Sept 13 Nov 5 Oct 31 Oct 27 Oct 20 Oct 13 Oct 6 Sept 29 Sept 25 Sept 19 Sept 14 Sept 13 Sept 14 Sept 13 Sept 14 Sept 13 Sept 14 Sept 15 Sept 15 Sept 15 Sept 16 Sept 17 Sept 17 Sept 18 Sept 18 Sept 19 Sept 15 Sept 19 Sept 15 Sept 18 Sept 18 Sept 19 Sept 15 Sept 16 Sept 17 Sept 18 Sept 18 Sept 19 Sept 19 Sept 15 Sept 19 Sept 15 Sept 19 Sept 15 Sept 19 Sept 15 Sept 18 Sept 18 Sept 19 Sept 15 Sept 18 Se										
Att. Clemens	lio	Oct 6	Oct 1	Sept 28						Aug 21
Sept 20										
Sept 2   Sept 3   S										
Muskegon Nov 25 Nov 8 Nov 3 Oct 25 Oct 15 Oct 4 Sept 25 Sept 20 Sept 8 Nov 8 Nov 3 Oct 25 Oct 15 Oct 4 Sept 25 Sept 20 Sept 8 Nov 8 Nov 1 Oct 10 Oct 6 Sept 30 Sept 23 Sept 16 Sept 10 Sept 6 Sept 30 Nov 1 Nov 1 Oct 15 Oct 11 Oct 4 Sept 26 Sept 18 Sept 11 Sept 7 Sept 3 Nov 1 Oct 15 Oct 10 Oct 2 Sept 24 Sept 15 Sept 7 Sept 3 Nov 1 Oct 18 Oct 14 Oct 8 Oct 1 Sept 25 Sept 19 Sept 15 Sept 17 Sept 14 Sept 19 Nov 1 Oct 18 Oct 14 Oct 8 Oct 1 Sept 25 Sept 19 Sept 15 Sept 17 Sept 14 Sept 10 Nov 1 Oct 27 Oct 20 Oct 12 Oct 4 Sept 26 Sept 19 Sept 14 Sept 13 Nov 1 Oct 27 Oct 20 Oct 13 Oct 6 Sept 29 Sept 29 Sept 25 Sept 29 Sept 26 Sept 19 Sept 14 Sept 13 Sept 14 Sept 13 Sept 14 Sept 13 Nov 1 Oct 27 Oct 20 Oct 13 Oct 6 Sept 29 Sept 25 Sept 29 Sept 24 Sept 15 Sept 14 Sept 13 Sept 14 Sept 13 Sept 15 Sept 14 Sept 15 Sept 14 Sept 15 Sept 14 Sept 15 Sept 15 Sept 15 Sept 16 Sept 17 Sept 17 Sept 17 Sept 17 Sept 17 Sept 18										
Nov   1										-
Newberry Nov 1 Oct 16 Oct 11 Oct 4 Sept 26 Sept 18 Sept 11 Sept 7 Sept 3 Nov 1 Nov 1 Oct 15 Oct 10 Oct 2 Sept 24 Sept 15 Sept 7 Sept 3 Aug 22 Nowsso Nov 1 Oct 18 Oct 14 Oct 8 Oct 1 Sept 25 Sept 19 Sept 15 Sept 14 Sept 13 Nov 1 Nov 5 Oct 24 Oct 20 Oct 12 Oct 4 Sept 26 Sept 19 Sept 14 Sept 13 Nov 2 Nov 5 Oct 31 Oct 27 Oct 20 Oct 13 Oct 6 Sept 29 Sept 14 Sept 13 Nov 2 Nov 8 Nov 3 Oct 26 Oct 17 Oct 7 Sept 29 Sept 25 Sept 19 Sept 14 Sept 13 Nov 1 Nov 9 Nov 8 Nov 3 Oct 26 Oct 17 Oct 7 Sept 29 Sept 24 Sept 13 Nov 1 Nov 9 Nov 2 Oct 28 Oct 20 Oct 12 Oct 3 Sept 25 Sept 19 Sept 14 Sept 13 Nov 1 Nov 19 Nov 14 Oct 7 Sept 29 Sept 21 Sept 13 Nov 14 Oct 7 Sept 29 Sept 25 Sept 19 Sept 14 Sept 13 Nov 14 Oct 7 Sept 29 Sept 25 Sept 27 Sept 18 Nov 14 Oct 7 Sept 29 Sept 27 Sept 28 Sept 28 Nov 14 Oct 28 Oct 19 Oct 14 Oct 7 Sept 29 Sept 21 Sept 13 Sept 14 Sept 13 Nov 14 Oct 25 Oct 26 Oct 18 Oct 10 Oct 2 Sept 28 Sept 24 Sept 13 Sept 24 Sept 14 Sept 15 Sept 13 Sept 14 Sept 15 Sept 14 Sept 14 Sept 15 Sept 14 Sept 14 Sept 15 Sept 14 Sept 14 Sept 14 Sept 15 Sept 14 Sept 14 Sept 14 Sept 15 Sept 14 Sept 15 Sept 14 Sept 14 Sept 15 Sept 15 Sept 14 Sept 14 Sept 14 Sept 15 Sept 15 Sept 14 Sept 14 Sept 15 Sept 14 Sept 15 Sept 14 Sept 15 Sept 14 Sept 14 Sept 15 Sept 14 Sept 15 Sept 15 Sept 14 Sept 15 Sept 15 Sept 15 Sept 16 S										
Onaway										
Ownso         Nov         1         Oct         18         Oct         14         Oct         8         Oct         1         Sept         15         Sept         15         Sept         14         Sept         25         Sept         19         Sept         15         Sept         14         Sept         14         Oct         20         Oct         12         Oct         4         Sept         25         Sept         19         Sept         14         Sept         13           Port         Huron         Nov         5         Oct         31         Oct         27         Oct         20         Oct         13         Oct         6         Sept         29         Sept         25         Sept         25         Sept         22         Sept         22         Sept         22         Sept         22         Sept         22         Sept         23         Sept         23         Sept         22         Sept         24         Sept         12         Sept         23         Sept         25         Sept         21         Sept         25         Sept         21         Sept         25         Sept         21         Sept         22										
Paw Paw Nov 5 Oct 24 Oct 20 Oct 12 Oct 4 Sept 26 Sept 19 Sept 14 Sept 13 Sept 14 Sept 14 Sept 15 Sept 15 Sept 17 Oct 17 Oct 17 Oct 17 Sept 17 Sept 17 Sept 17 Sept 18 Sept 19										
Pontiac         Nov         5         Oct         31         Oct         27         Oct         20         Oct         13         Oct         6         Sept         29         Sept         25         Sept         23         Sept         29         Sept         25         Sept         23         Sept         21         Sept         29         Sept         25         Sept         22         Sept         12         Sept         29         Sept         29         Sept         21         Sept         21         Sept         12         Sept         21         Sept         13         Sept         22         Sept         21         Sept         23         Sept         24         Aug         22           South Haven         Nov         1         Oct         25         Oct         20         Oct         13         Oct         10         Oct         2										
Port         Huron         Nov         9         Nov         8         Nov         3         Oct         26         Oct         17         Oct         7         Sept         29         Sept         24         Sept         12           Saginaw FAA         Nov         9         Nov         2         Oct         28         Oct         20         Oct         12         Oct         3         Sept         25         Sept         21         Sept         12           Sault St. Marie         Oct         28         Oct         19         Oct         14         Oct         7         Sept         29         Sept         21         Sept         13         Sept         29         Sept         21         Sept         13         Sept         9         Aug         22           South Haven         Nov         5         Nov         7         Nov         3         Oct         26         Oct         18         Oct         10         Oct         2         Sept         28         Sept         28         Sept         28         Sept         12         Sept         13         Oct         5         Sept         13         Oct										
Saginaw FAA Nov 9 Nov 2 Oct 28 Oct 20 Oct 12 Oct 3 Sept 25 Sept 21 Sept 12 Sault St. Marie Oct 28 Oct 19 Oct 14 Oct 7 Sept 29 Sept 21 Sept 13 Sept 9 Aug 22 South Haven Nov 5 Nov 7 Nov 3 Oct 26 Oct 18 Oct 10 Oct 2 Sept 28 Sept 24 Sept 13 Sept 29 Sept 21 Sept 13 Sept 9 Aug 22 Sept 14 Sept 14 Sept 15 Sept 15 Sept 16 Sept 17 Sept 18 Sep									2.5	
Sault St. Marie Oct 28 Oct 19 Oct 14 Oct 7 Sept 29 Sept 21 Sept 13 Sept 9 Aug 22 South Haven Nov 5 Nov 7 Nov 3 Oct 26 Oct 18 Oct 10 Oct 2 Sept 28 Sept 24 Sept 19 Sept 10 Oct 25 Oct 20 Oct 13 Oct 5 Sept 26 Sept 19 Sept 15 Sept 17 Sept 18 Sept 19 Sept 15 Sept 19 Sept 10 Oct 24 Oct 20 Oct 12 Oct 4 Sept 26 Sept 18 Sept 14 Sept 11 Sept 11 Sept 11 Sept 18 Sept 14 Sept 11 Sept 11 Sept 11 Sept 18 Sept 14 Sept 19 Sept 19 Sept 10 Sept 11 Sept 3 Aug 29 Aug 21 Sept 18 Sept 14 Sept 19 Sept 19 Sept 10 Sept 11 Sept 3 Aug 29 Aug 21 Sept 18 Sept 19 Sept 10 Sept 11 Sept 3 Aug 29 Aug 21 Sept 18 Sept 19 Sept 10 Sept 11 Sept 3 Aug 29 Aug 21 Sept 19 Sept 3 Aug 29 Aug 21 Sept 3 Sept 3 Sept 29 Sept 20 Sept 11 Sept 3 Aug 29 Aug 21 Sept 3 Sept 29 Sept 3 Sept 3 Sept 3 Aug 29 Aug 21 Sept 3 Sept 3 Sept 3 Sept 30 Sep										
South Haven         Nov         5         Nov         7         Nov         3         Oct         26         Oct         18         Oct         10         Oct         2         Sept         28         Sept         24           Three Rivers         Nov         1         Oct         25         Oct         20         Oct         13         Oct         5         Sept         26         Sept         19         Sept         15         Sept         13           Fraverse City FAA         Nov         1         Oct         24         Oct         20         Oct         12         Oct         4         Sept         26         Sept         18         Sept         14         Sept         10         Sept         18         Sept         14         Sept         20         Sept         14         Aug         1         Aug         1         Aug         1         Aug         1         Aug         1         Aug         21         Aug         21         Aug         20         Aug         21         Aug         21         Aug         21         Aug         21         Aug         22         Aug         14         Aug         29         Aug<										
Three Rivers Nov 1 Oct 25 Oct 20 Oct 13 Oct 5 Sept 26 Sept 19 Sept 15 Sept 13 Oct 5 Sept 26 Sept 19 Sept 15 Sept 13 Oct 5 Sept 26 Sept 27 Sept 28 Sept 29 Sept 20 Sept 20 Sept 3 Aug 29 Aug 21 Sept 3 Aug 29 Aug 21 Sept 3 Aug 29 Aug 21 Sept 3 Aug 29 Aug 20										
Traverse City FAA Nov 1         Oct 24         Oct 20         Oct 12         Oct 4         Sept 26         Sept 18         Sept 14         Sept 11           Vanderbilt II         Sept 18         Sept 14         Sept 9         Sept 1         Aug 23         Aug 14         Aug 5         Aug 1         Aug 1           West Branch         Oct 29         Oct 12         Oct 8         Sept 29         Sept 20         Sept 11         Sept 3         Aug 29         Aug 21										
Vanderbilt II Sept 18 Sept 14 Sept 9 Sept 1 Aug 23 Aug 14 Aug 5 Aug 1 Aug 1 West Branch Oct 29 Oct 12 Oct 8 Sept 29 Sept 20 Sept 11 Sept 3 Aug 29 Aug 21										
West Branch Oct 29 Oct 12 Oct 8 Sept 29 Sept 20 Sept 11 Sept 3 Aug 29 Aug 21										
									-	

			Table 4	. VEGE	TABLE PR	ODUCT	ION CHAI	RT*			
Vegetable	Amount for One (Fresh	Adult	Amount for a Fami (Fresh	ly of Four	Amount for One (Processed	Adult	Amount for a Famil (Processed	y of Four	Spacing Between Rows	Yield Per 100 Feet of Row**	Yield Per 100 Square Feet**
	Pounds	Feet of Row	Pounds	Feet of Row	Pounds	Feet of Row	Pounds	Feet of Row	Inches	Pounds	Pounds
Asparagus	1.5	10	5	35	5	35	15	100	36	15	5
Beans, Lima	3	40	10	125	3	40	10	125	21	8	5
Beans, Snap	15	25	50	85	18	30	55	90	21	60	34
Beets	3.5	4	10	10	7.5	8	25	25	21	100	57
Broccoli	8	20	25	60	12	30	35	90	30	40	16
Brussels Sprouts	6	20	20	65	8	25	25	85	30	30	12
Cabbage	15	13	45	40	15	13	45	40	30	120	48
Carrots	10	8	30	25	10	8	30	25	21	120	69
Cauliflower	9	10	25	30	12	15	35	40	33	90	33
Celeriac	.5	1	2	3					21	60	34
Celery	4	1	12	3		•••			28	430	184
Chinese Cabbage	2	1	6	2		••			27	420	187
Collards	2	3	5	7	4	5	10	15	21	80	46
Cucumbers	8	4	25	12	10	5	30	15	48	200	50
Eggplant	4	3	10	9					30	115	46
Endive	4	7	10	18					15	55	44
Garlic	1	4	3	12	2	8	5	20	15	25	20
Jerusalem											
Arthichoke	1.5	2	5	3	1	2	3	2	48	150	38
Kale	1	1	3	3	2	2	6	6	21	100	57
Kohlrabi	1.5	2	5	7					21	75	43
Leeks	1	3	3	7	1	3	3	7	15	45	36
Lettuce	6	12	20	40					15	50	40
Muskmelon	10	9	30	27	2	3	6	6	48	110	28
Mustard	1	2	3	6				•	21	50	29
Okra	3	5	10	17	4	6	10	20	27	60	27
Onions (dry)	8	12	25	30	20	24	60	72	15	115	92
(green)										50	40
Parsley	.25	1	1	4	.5	2	2	7	15	30	24
Parsnips	3	6	10	20	3	6	10	20	21	50	29
Peas, Shelled	4.5	15	15	50	7.5	25	25	85	15	30	24
Peas, Snap	1	3	3	8	1	3	3	8	15	40	32
Peppers	3	3	10	8	3.5	3	10	8	30	120	48
Pop Corn					4	15	15	55	33	28	10
Potatoes, Irish	25	21	75	50	75	50	225	150	30	150	60
Potatoes, Sweet	3	18	10	25	4	10	10	25	36	40	13
Pumpkins	10	4	30	10	8	3	25	8	60	300	60
Radishes	4	40	10	100					9	10	11
Rhubarb	4	4	10	10	4	4	10	10	48	100	25
Rutabaga	1.5	2	5	5	2	2	5	5	21	100	57
Salsify	.5	1	2	3	.5	1	2	3	21	80	46
Spinach	3	6	10	20	5	3	15	8	15	50	40
Squash, Summer	10	5	30	12	3	2	10	4	42	240	69
Squash, Winter	6	3	20	9	3	2	10	4	60	230	46
Sweet Corn	25 ears	25	80 ears	80	50 ears	50	160 ears	160	30	100 ears	36 (kernels
Swiss Chard	3	4	10	12	4.5	6	15	20	21	85	49
Tomatoes	24	15	70	40	36	23	110	65	36	165	55
Turnips	5	5	15	15	7	7	20	20	21	100	57
Watermelons	12	12	35	35					72	100	17

<sup>\*</sup>Assumptions: Amount per person is for individuals who like to eat that particular plant. If they don't, they won't plant any.

Amount for a family of 4 is generally about 3 times the amount needed by one adult. This is because a family of four would usually include some children who probably wouldn't eat as much as an adult, or the family might include one or more members who wouldn't care to eat that particular vegetable.

<sup>\*\*</sup>Yields are based on standard row plantings. Wide row planting, trellising, and other intensive gardening techniques would probably yield more than the amounts listed above.

	SEED COST COMPARISON										
	Pa	arsnips (one ye	ear longevity)			Le	ttuce (six year	rs longevity)			
Amount	Cost	Feet Planted	Cost for 25 ft.	% Decrease in Cost Over Pkt. Price	Amount	Cost	Feet Planted	Cost for 20 ft.	% Decrease in Cost Over Pkt. Price		
1 pkt.	\$ .65	25	\$.65		1 pkt.	\$ .85	20	\$.85			
1 oz.	1.65	200	.21	68	½ oz.	1.75	200	.175	79		
1/4 lb.	3.25	800	.10	85	1 oz.	2.25	400	.11	87		

plantings are made. For example, three or four small plantings of corn, beans and lettuce two weeks apart will be better than a single large planting. It is also important to use early, mid-season, and latematuring varieties in conjunction with successive plantings to insure a continual harvest.

#### Amount of Seed to Buy

For most vegetables, a small packet of seeds will produce enough for a family of four. More than one packet will probably be needed for large-seeded crops such as beans, peas and sweet corn. Since the number of seeds in a packet varies greatly, the approximate number of seeds in an ounce are given in the SEED INVENTORY AND ORDER-ING CHART (Table 5). Some seed catalogs also provide information about how much a packet of seeds will plant. Purchase slightly more seeds than needed since 100% germination rarely will be obtained and often a significant number of seedlings will be lost to insects and diseases. Most gardeners plant excess seeds and then thin to a complete stand of healthy plants before the seedlings start to crowd each other.

#### Cost of Seeds

Seeds are relatively inexpensive when compared to other items. However, to save money combine orders with friends or other individuals and buy seeds in larger quantities. In comparing the cost of parsnip seed by packet and ounce, a one ounce package will plant about eight times as much as a packet, but costs less than three times as much. The ounce packet would be a good buy if the seeds could be used during the year. It would be a poor buy, however, if only a small portion of the seeds were used since the longevity of parsnip seeds is only a year and they would germinate poorly the following year. Note that ¼ pound would plant 32 times as much as a packet, but costs only five times as much, an 85% decrease in price. It also would only be a good buy if most of the seeds could be used during the year.

Lettuce and other vegetable seeds cost considerably less when ordered in quantity, but are only a good buy if they can be used while still viable. In comparing a packet and an ounce of lettuce seed, an ounce will plant 20 times as much as one packet, but costs just less than three times as much. Both the half-ounce and one ounce quantities could be good buys if they are used in one year or can be stored properly from year to year and used before they lose their viability.

The main disadvantage of buying seeds in larger quantities is that it takes time and patience to divide large lots into smaller quantities and each person does not end up with nicely illustrated, labeled packets.

#### **Inventorying Seeds**

Reading about all the new varieties is very exciting to most gardeners. Finding and inventorying

left-over seeds from the previous years can also be a challenging experience. Determining what seeds are on hand and still viable is part of the inventory process. THE SEED INVENTORY AND ORDERING CHART (Table 5) can serve as a checklist for determining which seeds are left-over, which varieties and quantities need to be ordered and where seeds can be obtained. See Extension Bulletin E760a, Home Vegetable Garden Variety Recommendations, for more information and a listing of mail order seed companies.

#### Storing Seeds

It is generally recommended that home gardeners buy fresh seeds each year. However, it is possible to use left-over seeds of most vegetables that are one or more years old, except onions, parsley, parsnip and salsify, with satisfactory results if the seeds have been stored properly.

The best conditions for storing most vegetable seeds are relatively cool temperatures, 32° to 40°F, a relative humidity of 40 to 50% or lower, and a low moisture content in the seeds, about 7 to 10%. Seeds held in moistureproof and vaporproof containers store better than seeds exposed to the atmosphere, if packed at their optimum moisture content.

If seeds are collected and saved from non-hybrid varieties, let dry-

		IABL	E 7. SEE	אווע		AND ORDERING CHART	
	uggested Min. o. of Varieties to Grow	No. of Seeds Per Ounce	Seeds/ 100 ft. (oz.)	Seed Long. (yrs.)	Seeds Left-over (Yes)	Varieties to Order and Quantity	Sources
Beans, Lima	1	25-75	8	3			
Beans, Snap	(green) 1 (yellow) 1 (other: 1 Romano, Purple Pod)	100-125	8	3			
Beets	1	1,600	1/2	4			
Broccoli	1	9,000	1/4	3			
Brussels Sprouts		9,000	1/4	4			
Cabbage	1	9,000	1/4	4			
Carrots Cauliflower	1	23,000	1/4	3			
Celeriac	1	72,000	1/8	3			
Celery	1	72,000	1/8	3			
Chinese Cabbas		18,000	1/4	3			
Collards	1	9,000	1/4	5			
Cucumbers	(pickle) 1 (slicer) 1	1,100	1/4	5			
Eggplant	1	6,500	1/8	4			
Endive	1	27,000	1/4	5			
Kale	1	9,000	1/4	4			
Kohlrabi	1	9,000	1/4	3			
Leek	1 0 :	11,000	1/2	2			
Lettuce (b. Muskmelons	(leaf) 1 ibb/head) 1	25,000	1/4	6			
Mustard	1	1,300 18,000	1/4	5			
Okra	1	500	1/2	2			
Onions	1	9,500	1/2	1			
Parsley	1	18,000	1/4	1			
Parsnips	1	12,000	1/2	1			
Peas	(regular) 1 (snap) 1	90-175	16	3			
Peas, Southern	1	225	8	3			
Peppers	1	4,500	1/8	2			
Pop Corn	1	200-300	1	2			
Pumpkins	1	100-300	1/2	4			
Radish	(red) 1 (white) 1	2,000- 4,000	1	5			
Rutabaga	1	12,000	1/4	4			
Salsify	1	1,900	1/2	1			
Spinach	1	2,800	1/2	3			
(sumi	ner yellow) 1 mer green) 1 or scallop) 1 (winter) 1	200-400	1/2	4			
Sweet Corn (r. (main crop, p. (bicolor or swe	(early) 1 nidseason) 1 (late) 1 processing) 1	120-180	4	2			
Swiss Chard	1	1,600	1/2	4			
Tomatoes	(early) 1 ain season) 1 (cherry) 1 (paste) 1 (yellow) 1	11,500	1/8	4			
Turnips	1	15,000	1/4	4			
Watermelons	1	200-300	1/2	4			

seeded types stay on the plant as long as possible, collecting the seeds, fruits or entire plants just before seeds are shed. Whole plants can be dried and the seeds threshed by flailing or beating. Spread the seeds in thin layers and air-dry them in a protected area such as on a table indoors for several days to a few weeks depending on the temperature and humidity. Seeds will dry quicker in a well-ventilated room or area where the air is warm and dry. Seeds are commonly saved from self-pollinated crops, not hybrid varieites, of snap and lima beans, endive, lettuce, pea and tomato.

Seeds contained in fleshy fruits such as tomatoes can be separated by hand. Squeeze the fruits to extract the seeds and wash them by placing on a fine screen and squirting with water. Rubbing fruit through a screen, mashing with a wooden block or rolling pin or using an electric mixer are all methods that can be used to separate seeds from fleshy fruits. After separation, seeds should be dried as described above.

## Seed Longevity and Storage

The life span or longevity of seeds varies from a few weeks to over a thousand years depending upon the kind of plant and storage conditions. Seeds of most cultivated crops rarely remain viable for over 20 years. The longevity of most common vegetable seeds is given in the SEED INVENTORY AND ORDERING CHART. Although seeds may still germinate beyond the listed times, the seedlings probably won't grow as vigorously as those from fresh seeds. Old seeds probably would need to be sown thicker than usual to get a satisfactory stand. If in doubt, test a few seeds to see how well they germinate.

#### **Testing Seeds**

Left-over seeds can easily be tested using a paper towel. Simply place one or more kinds of seeds in rows on a paper towel. Ten in a row is a good number to use since the germination percentage can be determined by multiplying by ten. Roll up carefully, dampen the towel and put it in a covered container. Keep the towel damp, but not saturated. Place the container in a warm location, 75° to 90°F, such as on top of a refrigerator. Most viable seeds should germinate within a few days to a couple of weeks. If over half the seeds of a particular variety germinate, that lot probably is satisfactory and fresh seeds won't have to be purchased. If germination is poor, it would probably be best to obtain fresh seeds since the seedlings may not be as vigorous as seedlings from fresh seeds.

#### Intercropping

The planting of quick, early-maturing crops between plants or rows of long-season crops is called "intercropping." This practice is especially useful when garden space is limited. Examples of early-maturing crops include peas, radishes, green onions, spinach and lettuce. These crops could be planted between rows where late-maturing crops such as tomatoes, peppers, egg plant and corn are to be grown.

#### Other Information

This bulletin is concerned primarily with getting your garden underway. Other garden bulletins should be of considerable help in actually planting and caring for a garden. Since about half of all households are involved in some form of gardening, you should also be able to get some help from more experienced gardeners.

A complete listing of other garden bulletins is included on the back of this bulletin. They should all be available from your local county extension office.

TABLE 6. VEGETABLE PLANTING CHART For a typical home garden for a family of four (fresh use only)

Vegetable	Field Planting Times*	Weeks from Seed to Transplanting	Days to Maturity	Days Between Flowering and Harvest	Depth to Plant (Inches)	Amount of Seed or Plants (Ounces)**	Row Length (feet)	Planting D In Rows After Thinning		Estimated Production (Pounds)
Asparagus Beans, Lima Beans, Snap Beets Broccoli	April May 20-June 1 April 20-June 30 April 1-July 15 April 20-July 15	4	2 to 3 yrs. 68 to 90 50 to 70 57 to 80 60 to 75	40-45 10-14	8 1 to 2 1 to 2 ½ to 1 (plants)	12 plants 8 ounces 2 ounces 14 ounce 12 plants	35 125 85 10 60	12 to 18 3 to 4 3 to 4 2 to 3 12 to 15	36 to 60 18 to 24 18 to 24 18 to 24 30	5 10 (shelled) 50 10
Brussels Sprouts	April 20-May 15	4	90 to 95		(plants)	15 plants	65	18 to 24	30	20
Cabbage Carrots Cauliflower Celeriac Celery Chinese Cabbage Collards Cucumbers	April 1-July 15 April 1-July 1 June 20-30 April 1-20 April 1-May 30 June 20-July 30 April 1-Aug. 1 May 20-June 20	4 to 6 4 8 to 10	65 to 100 85 to 110 55 to 95 110 to 120 85 to 100 47 to 80 75 to 80 50 to 70	_4-8 (pickles) ~15-18 (slicers)	(plants) ½ to 1 (plants) ½ (plants) ½ 12 1 to 2	12 plants 1/8 ounce 5 plants 1/32 ounce 30 plants 1/32 ounce 1/16 ounce 1/16 ounce	40 25 30 3 3 2 7	12 to 15 1 18 to 24 4 to 6 6 12 6 to 8 12	24 to 36 18 to 24 30 to 36 18 to 24 24 to 32 24 to 30 18 to 24 48 to 72	45 (18 heads) 30 25 (10 heads) 2 12 (6 stalks) 8 (3 heads) 5 25
Eggplant Endive Garlic Jerusalem Artichoke Kale Kohlrabi Leeks Lettuce (head) Lettuce (leaf)	May 20-June 1 April 1-20 April 1-20 April-May June 20-July 30 Apr. 1-June 30 April 20 April 1-July 15 April 1-July 15	6 to 8 4 to 6	60 to 80 85 to 100 115 90 to 130 55 to 60 50 to 60 130 85 to 90 40 to 50	30-40	(plants) ½ 1½ 4 ½ to 1 1 to 1½ ½ 4 to ½ ¼ to ½ ¼ to ½	3 plants 10 plants 4 cloves 1 tuber 6 plants 24 plants 1/16 ounce 18 plants 1/64 ounce	9 18 12 5 3 7 7 15 25	24 to 30 8 to 12 3 12 to 18 8 to 15 4 to 8 2 to 3 8 to 15 6	24 to 36 12 to 18 12 to 18 36 to 48 18 to 24 18 to 24 12 to 18 18 to 24 12 to 18	10 (10 fruits) 10 3 (48 bulbs) 3 3 5 3 24 (21 heads) 11
Muskmelon Mustard Okra Onion (sets) Onion (transplants) Onion (seeds)	May 20-June 1 April 1-Aug. 15 May 20-June 1 April 1-May 1 April 1-May 1 April 1-May 1	12	80 to 90 45 to 50 80 to 90 45 to 90 90 to 115 105 to 130	40-45 4-6	(plants)  1/2  1/2  1 to 2 (plants)  1/2	6 plants 1/32 ounce ¼ ounce 4 ounces 120 plants ¼ ounce	27 6 17 15 15	36 to 48 6 to 8 12 to 15 2 2 to 3 2 to 3	48 to 60 18 to 24 24 to 30 12 to 18 12 to 18 12 to 18	30 (5-6 fruits) 3 10 11 11 5
Parsley Parsnips Peas Peppers Pop Corn Potatoes Potatoes, Sweet Pumpkins	April - July April 1-20 April 1-30 May 20-June 1 May 20-June 1 April 20-June 1 May 20-June 1 May 20-June 15	6	76 to 85 105 to 120 60 to 70 60 to 80 90 to 120 100 to 120 120 100 to 120	45-55 (green stage)	1/4 1/2 1 to 2 (plants) 2 to 2 1/2 4 (plants) 1/2	1/32 ounce 1/16 ounce 16 ounces 6 plants ½ ounce 5 pounds 25 plants 1/8 ounce	4 20 58 8 25x2r 50 25 10	4 3 to 4 2 to 3 14 to 18 10 to 12 10 to 12 12 to 18 36 to 48	12 to 18 18 to 24 12 to 18 24 to 36 30 to 36 24 to 36 36 60 to 72	1 10 18 10 14 75 10 30

Vegetable	Field Planting Times*	Weeks from Seed to Transplanting	Days to Maturity	Days Between Flowering and Harvest	Depth to Plant (Inches)	Amount of Seed or Plants (Ounces)**	Row Length (feet)	Planting D In Rows After Thinning		Estimated Production (Pounds)
Radishes Rhubarb Rutabaga Salsify Spinach Squash (Summer) Squash (Winter) Sweet Corn Swiss Chard	April 1-July 15 April June 1-20 April 1-20 April 1-July 15 May 20-June 1 May 20-June 1 April 20-July 1 April 1-20		23 to 30 1 to 2 yrs. 90 to 95 120 40 to 50 45 to 55 80 to 110 65 to 95 50 to 60	4-7 60-70 18-23 (from 50% silking)	1/2 (plants) 1/2 1/2 1/4 to 1/2 1 to 1/2 1 to 1/2 2 to 2/2 1/2	1/8 ounce 3 plants 1/8 ounce 1/64 ounce 1/16 ounce 1/16 ounce 2 ounces 1/16 ounce	100 10 5 3 20 12 9 40x2row 12	1 to 2 36 to 48 4 to 6 3 to 4 3 to 6 36 to 48 48 to 60 10 to 12 6 to 8	6 to 12 48 18 to 24 18 to 24 12 to 18 36 to 48 60 to 72 30 to 36 18 to 24	10 10 5 2 10 30 (60-120 fruits) 20 (5-10 fruits) 24 (kernels) (80 ears)
Tomatoes Turnips Watermelons	May 20-June 1 April 1-July 30 May 20-June 1	4 to 6	60 to 90 40 to 60 85 to 95	45-50 (red ripe) 45-50	(plants) 1 to 1½ (plants)	10 plants 1/8 ounce 6 plants	40 15 35	36 to 48 18 to 24 72	36 to 48 18 to 24 72	70 15 35 (3-5 fruits)

<sup>\*</sup>Earliest dates are for southern parts of the state; northern plantings should be 1 to 3 weeks later.

<sup>\*\*</sup> One ounce = 28 grams

#### Gardening Bulletins Available from Your Cooperative Extension Service

The following is a complete list of gardening publications which should be available at your county Extension office.

Home Vegetable Garden, E529 — 35¢

Home Vegetable Garden Variety Recommendations, E760A

Home Vegetable Garden Disease, Insect and Weed Control, E-760B — 80¢

Family Vegetable Garden Series (26 bulletins), E824 (1-26)

- 1. Use Winter Months to Plan Ahead
- 2. Start with Soil
- 3. Planting
- 4. Keep'em Growing
- 5. Herbs
- 6. Garden Beans
- 7. Root Crops
- 8. Greens

- 9. Melons, Cucumbers, Squash and Pumpkins
- 10. Salad Stuff
- 11. Drying and Storing Vegetables
- 12. Space Saving Ideas
- 13. Controlling Pests
- 14. Asparagus and Rhubarb, Garden Perennials
- 15. Starting Plants at Home
- 16. Peas
- 17. Onion Family
- 18. Tomatoes
- 19. When to Harvest Vegetables
- 20. Peppers and Eggplants
- 21. Sweet Corn
- 22. Lima Beans and Okra
- 23. Potatoes and Sweet Potatoes
- 24. Cabbage Family Vegetables
- 25. Organic Gardening
- 26. Dictionary of Terms

Single copies of these garden bulletins are free unless a price is listed.



MSU is an Affirmative Action/Equal Opportunity Institution. Cooperative Extension Service programs are open to all without regard to race, color, national origin, sex, or handicap.

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8, and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Gordon E. Guyer, Director, Cooperative Extension Service, Michigan State University, E. Lansing, MI 48824.

This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by the Cooperative Extension Service or bias against those not mentioned. This bulletin becomes public property upon publication and may be reprinted verbatim as a separate or within another publication with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company.

1P-10M-6:85-TCM-UP, New, Price 50 cents. For sale only.