Master Gardener Fruit Culture *objectives*

1. Major strategies for growing fruit crops.

2. Growing requirements of fruit, including planting, fertilizing, pruning.

3. Overview of primary pests of fruit and understand management strategies.

Why raise fruit at home?

Because

- you control the spray program

- you can plant unusual varieties

- can pick it when it is best

However--

- home grown may not be cheaper when all costs are considered

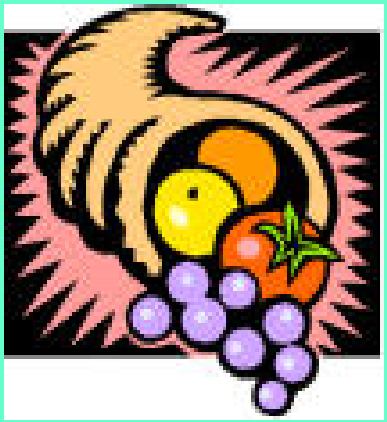
- the home garden may produce more than you can use

Small versus Tree Fruit

Small fruit – more compact and comes into production more quickly than tree fruit

Tree fruit – once established may be less work and longer lived than small fruit

Michigan is a great place to grow fruit



Michigan National Ranking in Fruit Crops

#1 Blueberries, Tart cherries, Niagara Grapes

#3 Sweet Cherries, Apples, Plums,

#6 Peaches

Other important fruit crops include Concord grapes, wine grapes, brambles, pears, strawberries

Fruit – the developed ovary of a seed plant with its contents and accessory parts

Tree fruit

Apples

Pears

Apricots

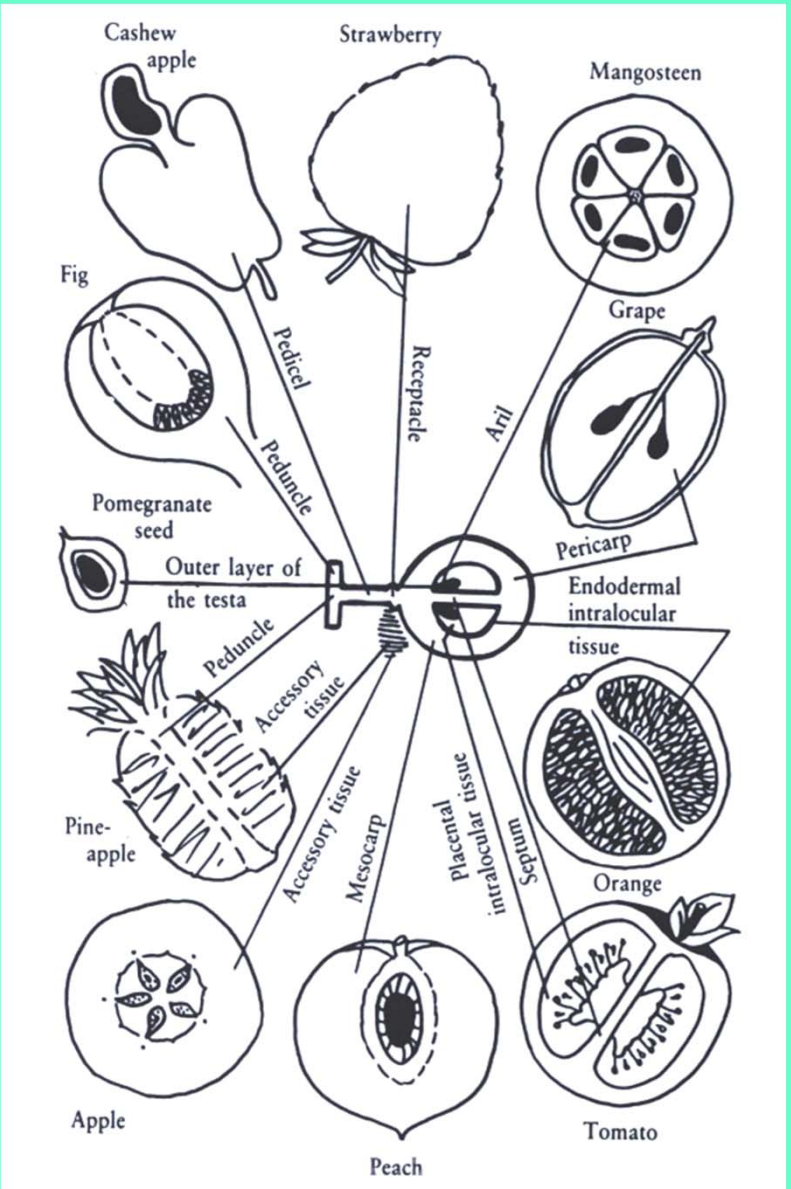
Peaches

Plums

Cherries

Paw Paws

Quince



Small fruit

Strawberries

Brambles

Blueberries

Grapes

Currents

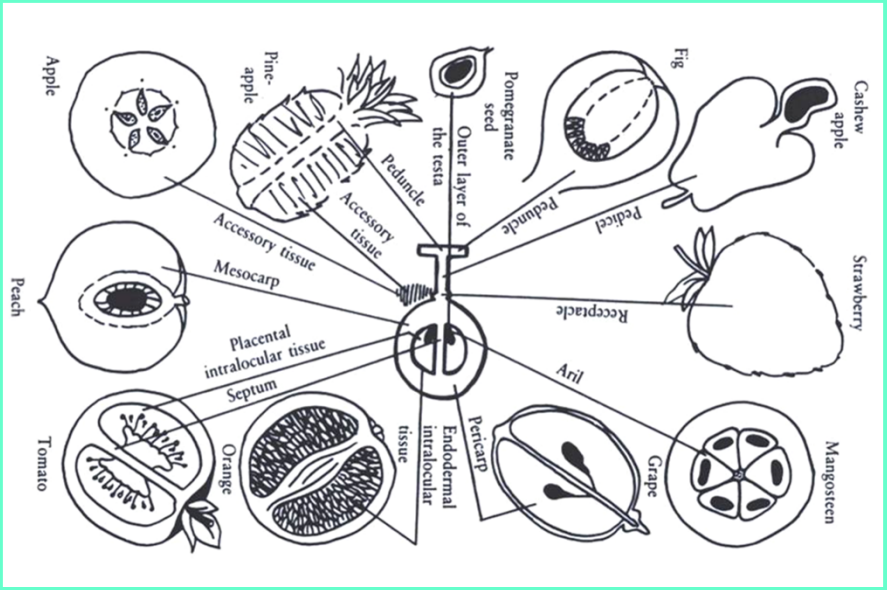
Gooseberries

Hardy Kiwi

Elderberries

June Berry

Understand fruit development



Apple fruit is exposed early

Peach fruit is protected by blossom in early stages

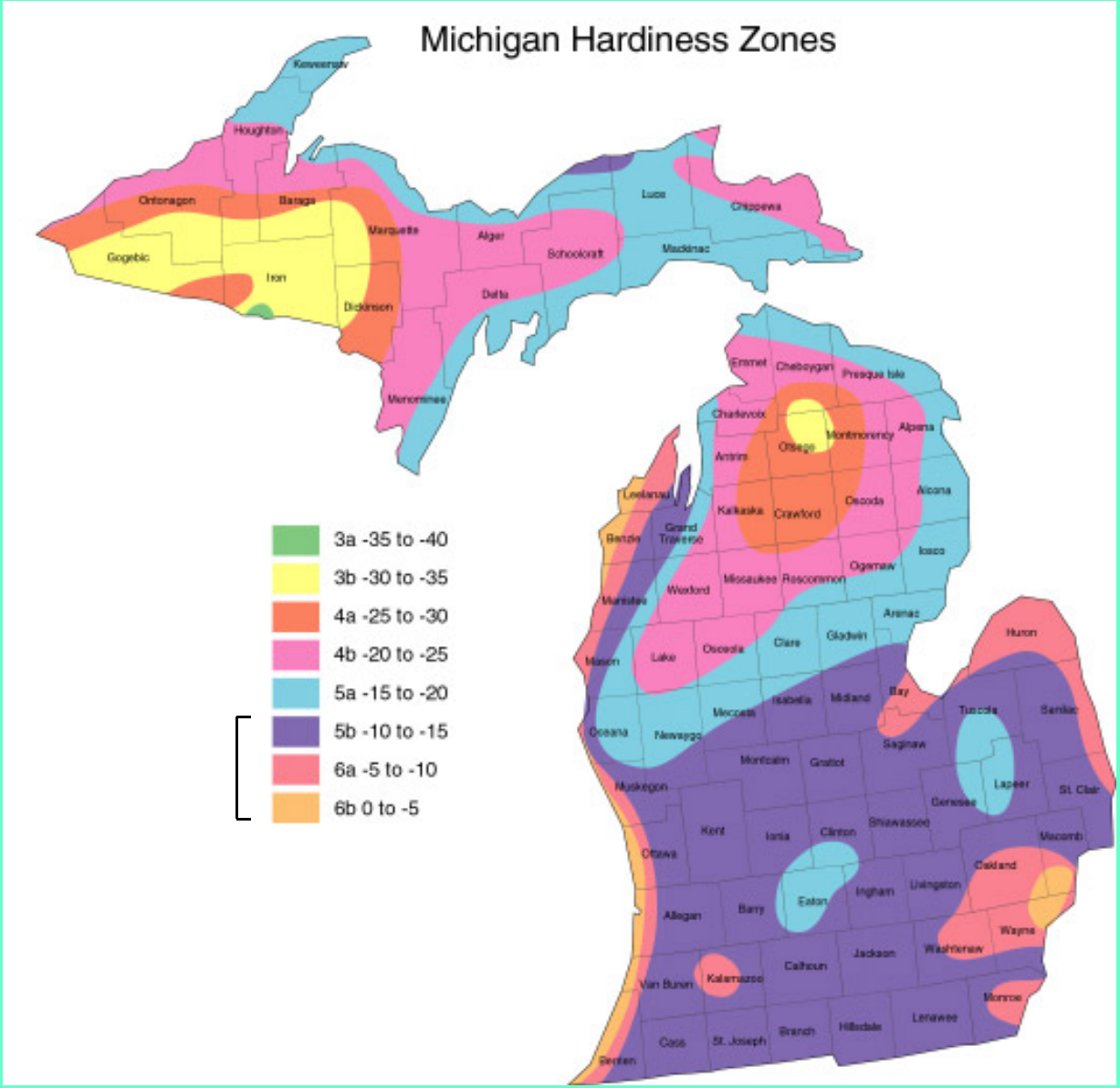
The Michigan climate is friendly to fruit growing

Lake water helps to:

- prevent air temperature from getting too cold in the midwinter

- prevent warm air temperature in early spring, thereby delaying bloom

Michigan Hardiness Zones and Typical Winter Low Temperatures

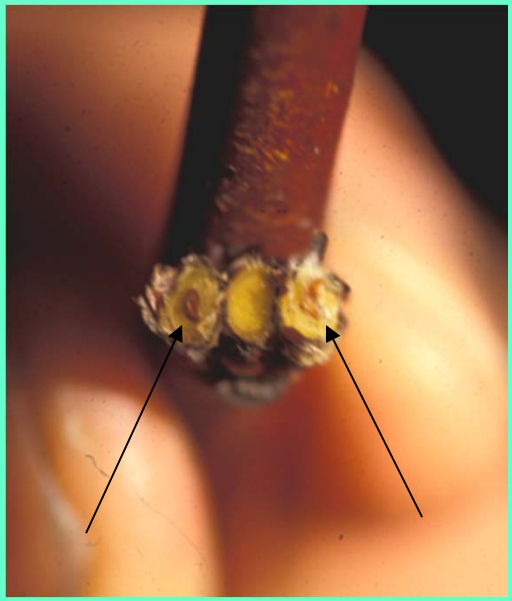


source: CropMap – Purdue University

Cold damage to fruit crops

Mid winter

Brown cambial layer under bark



Cross sections shows brown tissue of dead fruit buds with healthy leaf bud in middle positions

Early spring

Frost crystals on open fruit buds

Stone fruit are more prone than pome fruit to damage due to mid winter low temperatures

	Fruit type	Typical mid winter temperatures (F) sufficient to kill flower buds
Pome fruit	Apple	-30
	Pear	-30
Stone fruit	Apricot	-25
	Tart cherry	-20
	Plum	-15
	Sweet cherry	-15
	Peach & nectarine	-13

Small fruit types that have their fruit buds above ground during winter are more prone to low temperature damage

Exposed during winter

blueberries, grapes, summer raspberries, cranberries flower buds are above the soil line in winter

Protected during winter

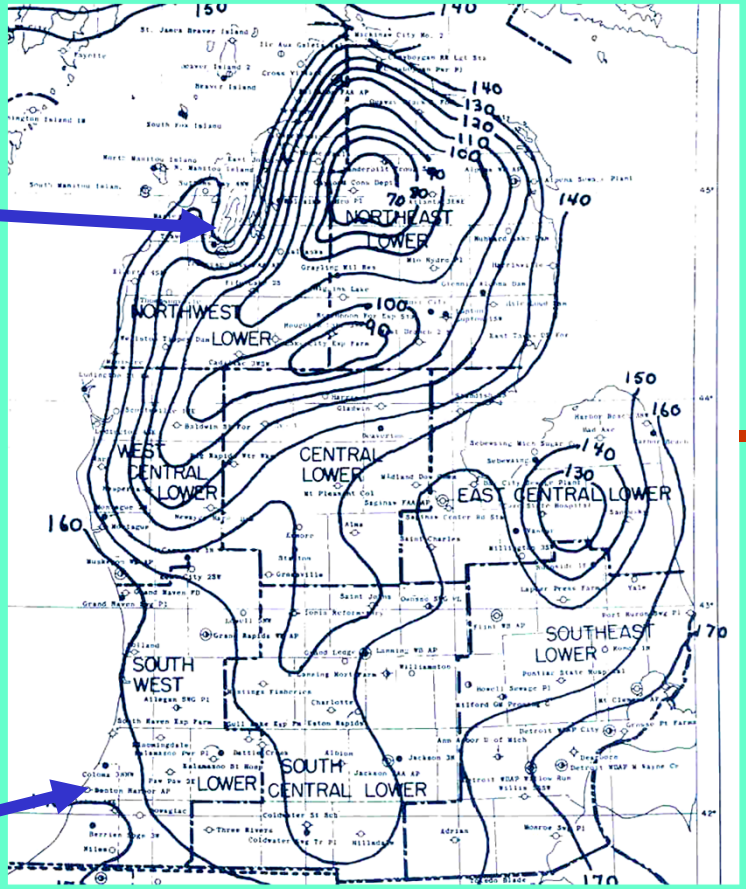
Strawberry flower buds are in the crown in soil during winter

Fall raspberries form flower buds after risk of spring frost is past

Average number of frost-free days depends on where you are in Michigan

Traverse City area averages 150 frost-free days

Benton Harbor area averages 170 frost-free days



Variety	Typical SW Michigan harvest	Days from bud opening to harvest
Macs	Sept 8	146
Gala	Sept 10	148
Red Delicious	Oct 1	169
Golden Delicious	Oct 3	171
Fuji	Oct 15	183

So—the day length in northern regions of Michigan is insufficient for late-ripening varieties in many years

Bloom order

Bloom early

Fruit types with early bloom are at greatest risk for spring frost damage

Apricot

Japanese Plum

European Plum

Peach/Nectarine

Sweet Cherry

Tart Cherry

Pear

Apple

Concords

Bloom late

Site selection for fruit

- Sunlight requirements

  - fruit needs approximately 60% full sun--all day is best

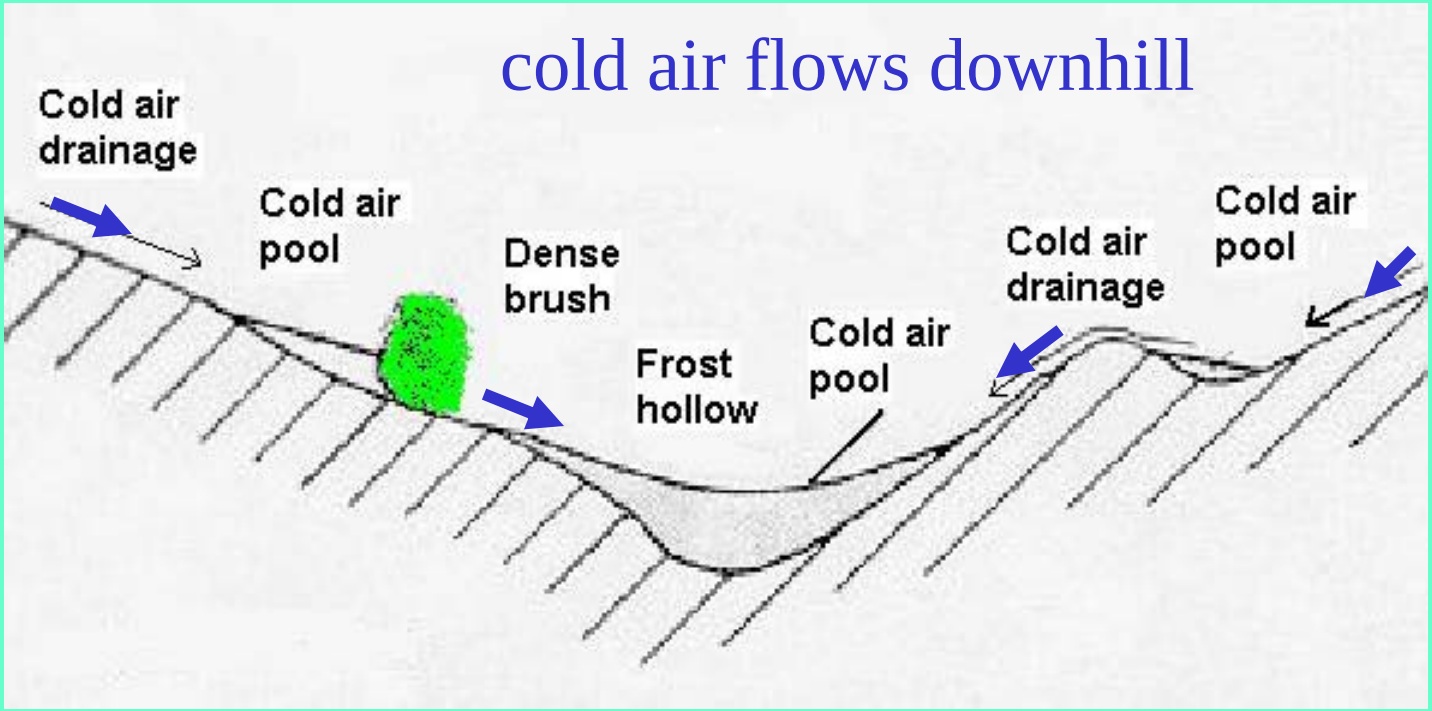
- Soil requirements

  - sandy loam to clay loam

  - good water drainage

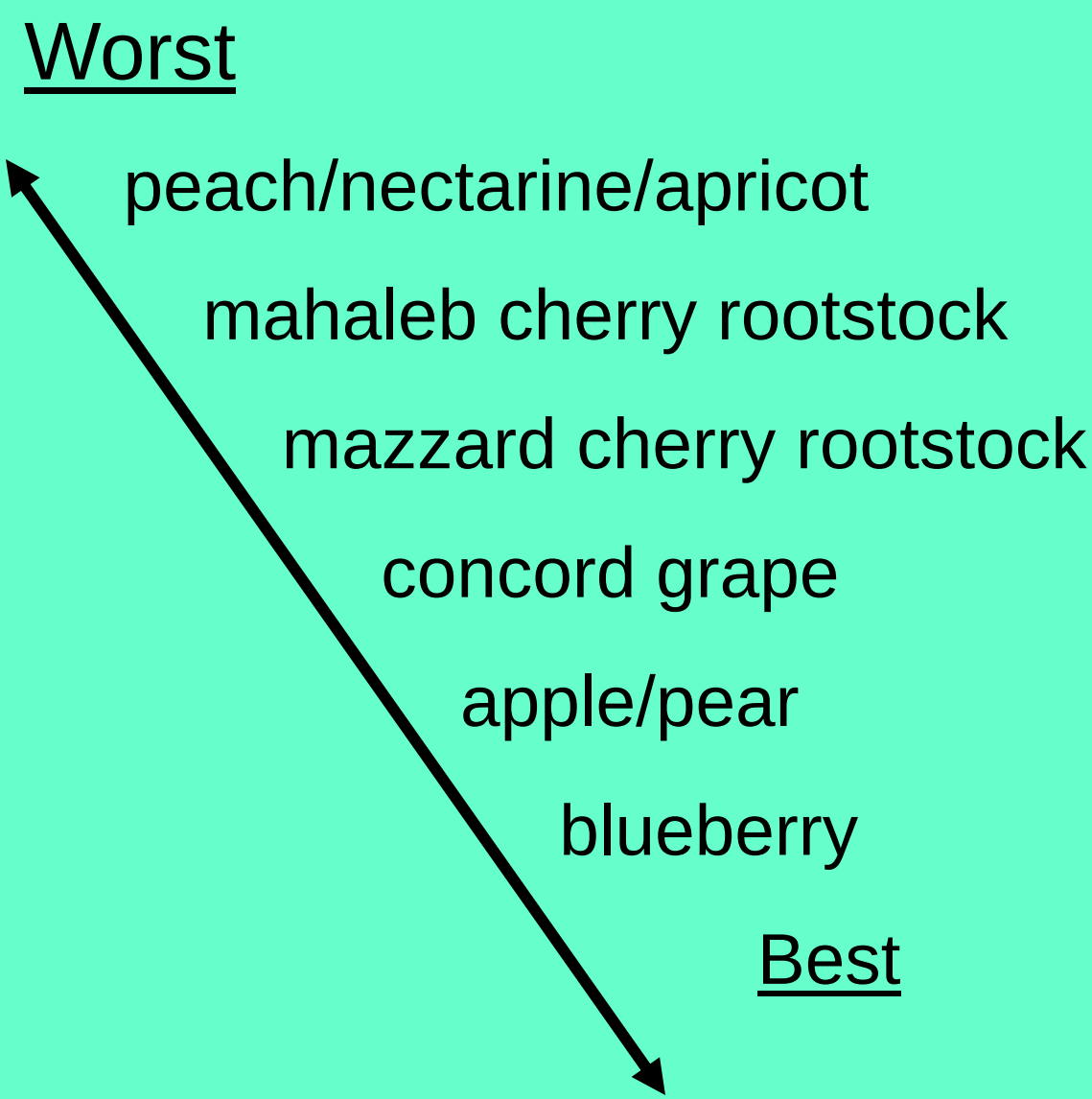
<u>for most fruit</u>: soil pH best is 6.2 to 6.8, okay is 5.5 to 7.5. Blueberries and cranberries require pH below 5.5 and perform best at pH between 4.5 and 5, tart cherries are somewhat intolerant of low pH.

Avoid planting fruit in “pockets” that collect cold air under still conditions



Adapted from graphic by Andrew Bootsma, Agrometeorological Resources Specialist, Land Resource Research Institute, Agriculture Canada

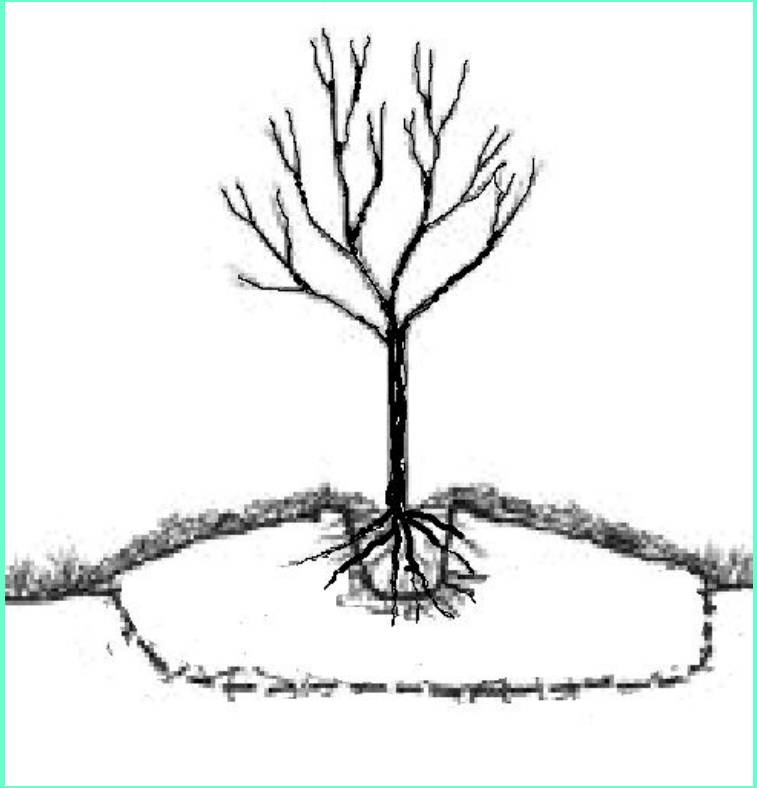
Tolerance to poorly drained soil



Build a mound or berm where wet soil is a problem. Also consider tiling for water drainage

Mound or berm should be approximately 6 inches above normal ground height after settling

6” inches



Choosing Fruit Types and Varieties

- Chose fruit types, varieties & rootstock that are adapted to the region
- Chose varieties to spread the harvest season
- End season with varieties known to have longer storage life.

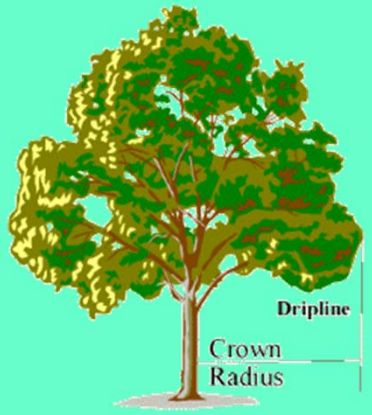
Fertilizing Fruit Plants

- adjust soil pH, phosphorus, potassium, calcium & magnesium before planting
- nitrogen is applied after the rain has settled the soil, and may not be needed at all, depending on the natural soil fertility
- nitrogen needs are based on plant growth, rather than soil tests.

excess fertilizer can burn roots and crown.

Fertilizing Fruit Plants

• Typical rates of nitrogen is approximately 1/6 lb of actual nitrogen per year of tree age, with a maximum of 3 lbs/year when 6 years or older.



Apply to drip zone area of older plants

Right distance, but too much & needs to be feathered out