

Growing Tomatoes at High Elevation

**Zoom Presentation by
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Topics Include:

Variety Selection
When to Plant
General Cultural Practices
Cold Weather & Hail Protection
Landscape/Wildlife Conflicts



**LARIMER COUNTY
MASTER GARDENER
COLORADO STATE UNIVERSITY
EXTENSION**

Jon Weiss is a Master Gardener with CSU Extension in Larimer County. He holds a master's degree in Horticulture from Virginia Tech, and is a former tomato, onion and carrot breeder.

The CSU Extension website, extension.colostate.edu, is a treasure trove of garden and home resources.

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Estes Valley Community Garden (EVCG).
To learn more about the Garden, visit our website
www.evcg.org.



Growing Tomatoes at High Elevations

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Definition of “High Elevation” • We’ll use “high elevation” as anything greater than 7,500 feet



Gardening at High Elevations

Pros

- Cool growing temperatures
- Can grow cool-season crops all year
 - Peas
 - Lettuce
 - Radishes
- Greater potential for moisture from snow or afternoon storms?
- Microclimates

Cons

- Short growing season
- Limited plant selection
- Closer in proximity to the sun, which can lead to sun damage on plants
- Soils are slow to warm
- Animals
- Wind

Unless you're using season-extension techniques, plan on your season lasting from mid-June to mid-September (~90-100 days)

What can we learn from reading a seed packet or plant label at a nursery



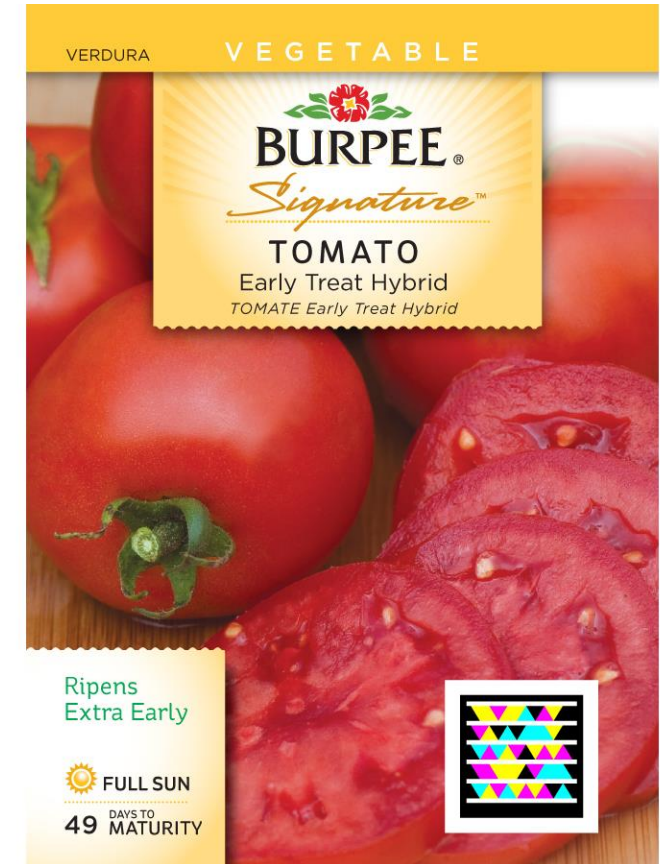
Variety Name

Fruit Shape/Color

Plant Habit
(Indeterminate/Determinate)

Hybrid vs Open Pollinated

Maturity
(based on date of transplanting)



Warm Season Vegetables

Very Tender Vegetables Crop:
**lima beans, cantaloupe, eggplant, pepper,
pumpkin, winter squash and pumpkins,
tomato, and watermelon**

- Temperatures: intolerant of frost, but also cool spring winds. They need daytime temperatures above 60°F, and prefer temperatures of 70°F to 95°F.
- A week of daytime temperatures below 55°F, may stunt the crop.
- When to plant: typically planted two plus weeks after the average last spring frost date.
- Pick sunny location and consider wind direction
- Late in season, cold temps will stop fruit set

MATURITY

- Days to maturity is a general timeline for harvest when plants are grown in optimum conditions. Note "optimum conditions" - weather and other factors can affect this!
- Days to maturity for transplants begins when the seedling is planted in the ground.
- Maturity can be express numerically and/or descriptive
- Early season varieties require 50 to 60 days to reach maturity.
- Mid-season varieties require 60 to 80 days to reach maturity.
- Late season varieties require more than 80 days to reach maturity.



Determinate plant habit

No staking necessary

Will lay on ground

More confined growth habit



Indeterminate plant habit

Needs to be staked

Can grow all over unless controlled



2 primary shoulder colors in tomatoes

Uniform ripening



Green





Tomato Shapes



Can I refrigerate tomatoes?





Growing Transplants (starts) From Seed

Tomatoes: plant seeds 6-8 weeks before transplant date

- 7-10 days before transplanting – begin hardening off process

**Starting Tomatoes from Seed • Start seeds indoors six weeks before the last frost date.
Harden them off before placing outside**



Plant tomatoes deep – roots will often emerge from stem



Cultural Suggestions

Mulch plants – organic mulch and/or black plastic to bump soil temp

Fertilize about 1-2 weeks after transplanting (half strength)

Fertilize again about 1 month after transplanting (no more fertilizer)

Sunny location with minimal wind

Remove early flowers & fruit to encourage larger plant

Water deep and once mature only 1-2 times per week

What is split set

OK to prune plants – may encourage ripening of fruit

Tomatoes have a deep root system – try to plant in deep containers





Ways to stake tomatoes



Variety Selection

Things to Consider

- Maturity
- Fruit size – early maturing varieties generally have small size fruit
- Growth type
- Some determinate varieties have a more concentrated set
- Foliage cover
- Disease resistance
- Fruit doesn't always have to be round in shape

Some Potential Tomato Varieties to Consider

Extra Early: Early Cascade, New Girl, First Lady, Patio Choice Yellow

Early: First Pik, Royal Mountie, Sunstart, Early Girl, bush Early Girl

Small-Fruited: Sun Gold, Matt's Wild, Juliet, Sweet Million

See list of plants at Harlequin's Gardens (Boulder) webpage



Hybrid Patio Choice Yellow

(large cherry), determinate.

This AAS Winner produces very large yields of 1/2 ounce bright yellow cherry tomatoes on short vines that grow only 18 inches tall. This mild-flavored cherry tomato sets over 100 fruit on compact plants that are perfect for urban or small space food gardeners.

TMV, Fusarium wilt, Verticillium wilt

Days To Harvest (Sowing Seed): 65

Days To Harvest (Transplant): 45

There is a Hybrid Patio Choice Red as well

Hybrid New Girl

(Johnny's Seed)

- Maturity 62 days
- Fruits avg. 4–6 oz. and have better flavor and are more disease resistant than Early Girl. Widely adapted.
- High resistance to fusarium wilt races 1, 2 and verticillium wilt. Indeterminate.



Hail Cloth

Benefits

- The first benefit is obvious - to protect your vegetables from unwanted hailstorms and the potential damage they can produce.
- The second benefit is shade for your vegetables. Studies suggest that a small amount of shade reduces the intensity of the sunlight. Plants appreciate the shade and will respond with enhanced performance.
 - The hail cloth I selected provides 13-15% shade and can be obtained from greenhousemegastore.com (but there are other businesses that sell it).
- A third benefit is hail cloth has a somewhat open weave that allows air movement and rain to penetrate it while keeping even small hail out.
- Another benefit is if installed properly, can prevent large insects (grasshoppers) and varmints from entering the growing area.





Hail cloth closeup

Easy to cut with scissors

Might shrink during 1st year

Will fly off frame during high winds so secure

Reusable for many years



Hail Damage

Cover tomato cage with hail cloth

Frost Protection and Extending the Growing Season



Hail cloth



Frost blanket



Plastic covering



AgroFabric

Heavy Weight - +6° to 8°F

AVAILABLE GRADES

PRO50 +4° to 6°F

AVAILABLE GRADES

PRO34

1.00 oz sq. yd.

Transmits 70% Light

PRO42

1.25 oz sq. yd.

Transmits 60% Light

Frost Protection and Overwintering

- **Provides up to 4° - 6°F frost protection** for sensitive ornamentals
- Offers overwintering protection for foliage and woody ornamentals in moderate climates

Medium Weight

1.50 oz sq. yd. Transmits 50% Light

PRO70

2.00 oz sq. yd. Transmits 35% Light

Frost Protection and Overwintering

Provides up to 6° - 8°F frost protection for sensitive ornamentals

Heat can build up under various coverings

Cold weather can stop fruit set and impact ripening



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Old fashion x-mas
lights – give off
heat



Managing Landscape Wildlife Conflicts

- Habit modification: eliminate/modify what is attractive to the wildlife
- Food, water
- Cover/shelter
- Exclusion
- Fencing, netting, enclosing
- Aversion – repellents, noise, motion, lights
- Relocation
- Lethal control – trapping, shooting, poisons

Fact Sheet 6.520 deer

Fact Sheet 6.521 burrowing animals





Habit modification

Eliminate/modify what is attractive to the wildlife

- Don't feed wildlife
- Don't provide shelter/hiding cover, make breeding difficult



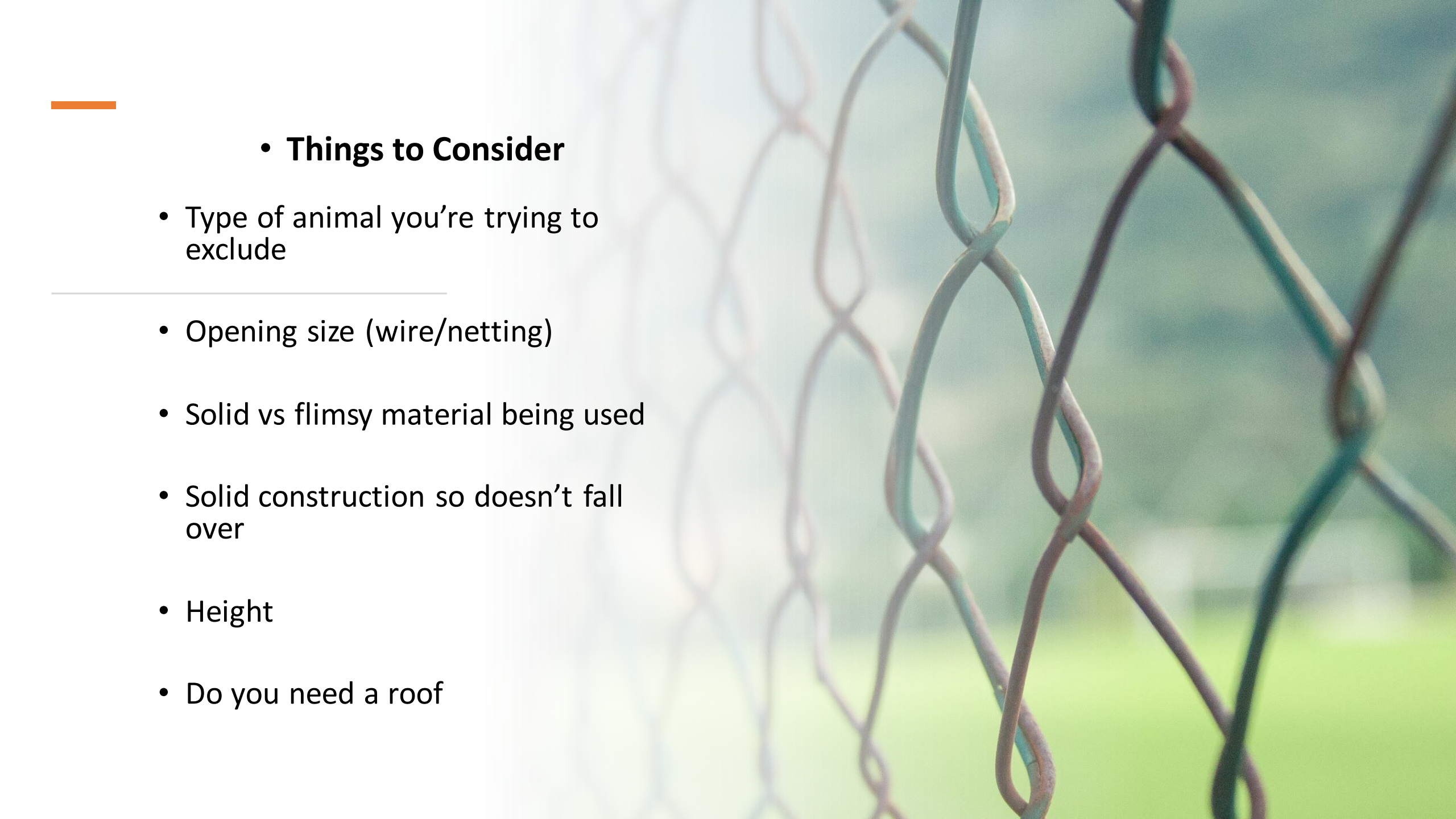
Exclusion of Unwanted Animals

- Fencing
- Netting





• **Things to Consider**

- Type of animal you're trying to exclude
-
- Opening size (wire/netting)
 - Solid vs flimsy material being used
 - Solid construction so doesn't fall over
 - Height
 - Do you need a roof
- 
- A background image of a chain-link fence, with the metal links in sharp focus in the foreground and a blurred green field and sky in the background.

QUESTIONS

extension.colostate.edu/topic-areas/yard-garden/?target=publications