College of Agricultural, Consumer and Environmental Sciences

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Planting the Vegetable Garden

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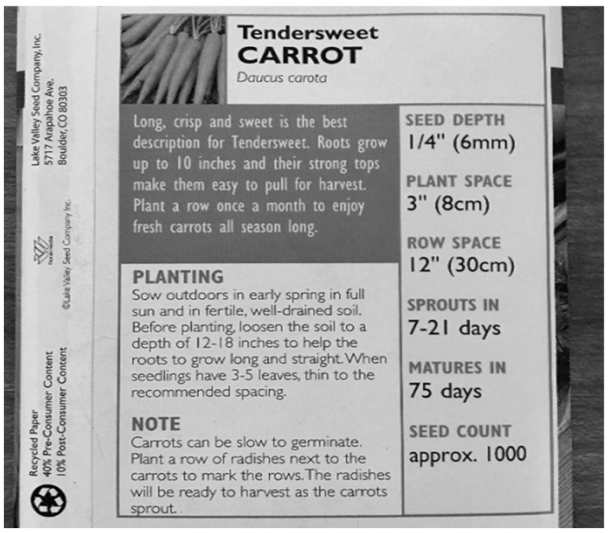
The College of Agricultural, Consumer and Environmental Sciences is an engine for economic and community development in New Mexico, improving the lives of New Mexicans through academic, research, and Extension programs.

EXPERIMENT

- Plant something
- Try something new
- Have fun
- Keep a garden log
- Research plants
- Make a wish list



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Know YOUR Climate --

- Sun / Shade patterns
- Sun moving from north/south sky
- Elevation
- Winds
- Protection
- Frost dates
- Growing Days
- Temperature swings

Spring Frost Dates (Avg range)

- Jun 1-15
  - Grants, Gallup, Mora, Raton
- May 15-Jun 1
  - Las Vegas, East Mtns, Espanola, Alcalde, Santa Fe
- May 1-15
  - ABQ valley, Los Lunas, Silver City, Farmington
- Apr 15-30
  - City of Albuquerque, Roswell, Portales
- Apr 1-15
  - Las Cruces, Alamogordo*, Carlsbad

- https://www.weather.gov/abq/springfreezetable
- https://www.plantmaps.com/interactive-new-mexico-last-frost-date-map.php
- All dates are variable within regions, elevation, and vary year to year. Occasional later frost dates may occur.

Fall Frost Dates (Avg)

- Sept 15
  - Grants, Gallup, Raton, Springer
- Sept 25-30
  - Las Vegas, East Mtns
- Oct 5-10
  - ABQ valley, Santa Fe, Portales
- Oct 15-20
  - City of Albuquerque, Farmington
- Oct 31
  - Las Cruces, Silver City, Alamogordo
  - Roswell, Carlsbad

- https://www.weather.gov/abq/climatefallfreeze
- https://www.plantmaps.com/interactive-new-mexico-first-frost-date-map.php

Plan BEFORE you plant

- How much space do you have?
- How do you plan to irrigate?
  - Drip, Hose, Flood,
- Do any of your plants require trellising?
  - Cucumbers, pole beans, tomatoes,
- How much room per variety do you need?

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Soil Prep and Health

- Dry soils – hydrophobic / dead
- Re-hydrate and mix
- Add compost 1 -2 week before planting
- Turn in cover crops – 3 weeks before planting
- Till vs minimal-tillage
- Raised bed vs in-ground
- Test manure before applying

Container Gardening

Use – POTTING MIX
NO – Garden Soil

https://agrilifeextension.tamu.edu/solutions/container-gardening/

Raised Bed

Row Covers

- Hoop supported vs. floating
- Perforated polyethylene vs. spun bonded polyester or polypropylene
- Provides a 2 to 4°F temperature boost
- May provide protection from insects

Season Extension --

- Row Cover
  - Agribon 19 – light frost protection
  - Agribon 30 – moderate frost
  - Agribon 50 – heavier frost to mid cold
- Mini- hoops
  - Electric Conduit (UV rated)
  - 6 mil plastic
  - Needs air circulation on sunny days
- Cold Frames
- Straw bale insulation

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Cold Frames

- Good place to start hardy seeds germinating
- Cool season vegetables will thrive within, even with freezing temperatures outside
- Safe place to start transplants being hardened off
- Protects from early frosts
- Easy to construct

HOOP HOUSE

- High tunnels, un-heated or passive greenhouses, varying terms
- Extends the growing season beyond traditional period (early and late)
- Protects crop from weather events
- Low to mid-cost range
- Vegetables, Fruits, Annuals, Perennials,
- Animal production

Winter growing

- Large temperature swings – cold and hot
- 40F outside = 80F inside
- Night temp cool quickly
- Cool season crops – leafy greens, beets, radish, etc…
- Consider internal row cover
- Water Barrels – passive heat
- Late frost protection – fruit crops
- Early start for seedlings

COLD Damage to Seedlings

Photo Credit: Atlas H. used with permission

Mulch

- A layer of material on top of the soil to protect the soil, retain moisture, and reduce weeds.
- Types
  - –Straw, leaves, newspaper, plastic, pecan shells, compost
- How to apply
  - –Once plants are established, cover ground 2 – 4 inches
  - –Water to help settle

Mulching

- Pros
  - –Keeps weeds at bay
  - –Conserves soil moisture
  - –Increases soil temp
- Cons
  - –Could harbor pests
  - –Labor and cost investment
  - –Increases soil temp

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Watering

Be Consistent – check

Over + underwater

Drying out

Bubblers, drip, on timers, Ollas, water catchment

Vegetables and Temperature

- Many vegetables expire at cold temps; some suffer at high temps
- Plant vegetables for growth during their preferred temperature
- Warm Season vs. Cool Season Vegetables
- In general, warm season vegetables prefer temperatures in the 75 – 85 F range; cool season vegetables prefer temperatures in the 65 – 75 F range
- Certain plants germinate in preferred soil temperature ranges

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Soil Temperature for Veg Seed Germination

Crops	Minimum (°F)	Optimum range (°F)	Maximum (°F)
Asparagus	50	75-85	95
Beans, Lima	60	75-85	85
Beans, Snap	60	75-85	95
Beets	40	65-85	95
Broccoli	40	60-85	95
Cabbage	40	60-85	95
Carrots	40	65-85	95
Cauliflower	40	65-85	95

- http://sacmg.ucanr.edu/files/164220.pdf
- Univ of California ANR Extension
- https://extension.oregonstate.edu/gardening/techniques/soil-temperature-conditions-vegetable-seed-germination

Vegetable Planting guide

- https://cmg.extension.colostate.edu/Gardennotes/720.pdf

Table 1 – Vegetable Planting Guide

Vegetable	Germination Temperature[1] Min.	Optimum	Max.	Plant Spacing[2]	Planting Depth	Days to Germination	Typical Days to Harvest	Age of Transplant (weeks)
Cool Season Crops[3]								
Beets	40°	80°	90°	4-6"	¾-1"	7-10	60	
Broccoli[4]	40°	80°	90°	18"	½"	3-10	65T[4]	5-7
Cabbage[4]	40°	80°	90°	18"	½"	3-10	85T[4]	5-7
Carrots	40°	80°	90°	2-3"	¼"	10-17	70	
Cauliflower[4]	40°	80°	90°	18"	½"	3-10	65T[4]	5-7
Kohlrabi	40°	80°	90°	7-9"	½"	3-10	50	

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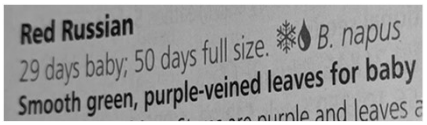
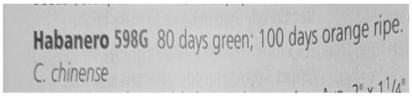
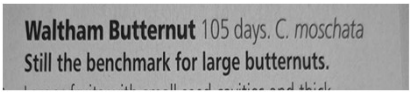
Days growing to maturity --







Variety	Days
Catalyst XR	66
Kickoff XR	69
Signature XR	73
Anthem XR	74
Natural Sweet	74
Xtra-Tender 3473	75
Vision MXR	75
American Dream	77
Enchanted	78
NEW Packout	79

Growing days to harvest based on optimal growing conditions. All dates are approx.

Plant description help inform growing and planting intentions based on your growing window.

Screenshots taken from seed catalogs. No endorsements of varieties or companies are being made.

What to plant now – depends where you are

- Lettuce
- Spinach
- Kale
- Swiss Chard
- Radish
- Peas
- Broccoli**
- Cauliflower**
- Brussel sprouts**
- Carrots
- Beets
- Turnips
- Kohlrabi

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Cool Season Plants

- Lettuce
- Spinach
- Sweet Peas
- Radish
- Snapdragons
- Bachelor buttons
- Stock
- Calendulas
- Pansies

Cool Season Vegetables: Family Ties

Allium Family (*Alliacae*): Onions, Garlic, Leeks

Sunflower Family (*Asteraceae*): Lettuce

Parsley Family (*Umbelliferae*): Carrots, Celery

Goosefoot Family (*Chenopodiaceae*): Spinach, Beets, Chard

Mustard Family (*Cruciferae*): Broccoli, Cauliflower, Cabbage, Turnips, Collards, Kale

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Cool-Season Vegetables

- Highly or somewhat frost tolerant
- Seeds germinate at cool soil temperatures
- Tend to have shallow root systems
- Greater response to N and P application
- Bolting (seed stalk development) may be a concern when hot

Cool-season Vegetables

- Many develop superior flavor and quality when they mature in cooler weather (example: broccoli)
- Flavor is improved with frost: cabbage, kale, kohlrabi, carrots, chard, turnip, tatsoi
- Lettuce and spinach tend to bolt and develop bitter flavor when maturing in hot weather
- Lettuce and spinach seed will not germinate if soil temp is >85°F

Cool Season Vegetables – Planting Guide for NM Area 2 (Albuquerque, Los Lunas, Santa Fe)

Vegetable Crop	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Beets												
Broccoli												
Carrots												
Chard, Swiss												
Lettuce, Leaf												
Onions												
Spinach												

Warm Season Plants

- Melons of all types
- Corn
- Tomatoes
- Sweet peppers
- Gourds
- Zinnias
- Blanket flower
- Sunflowers

Warm Season Vegetables: Family Ties

Grass Family (*Poaceae*): Corn

Nightshade Family (*Solanaceous*): Tomatoes, Eggplant, Peppers, Potatoes

Mallow Family (*Malvaceae*): Okra

Bean Family (*Leguminosae*): Green Beans, Kidney Beans, Pinto Beans

Cucurbit Family (*Cucurbitaceae*): Cucumbers, Squash, Melons

Warm Season

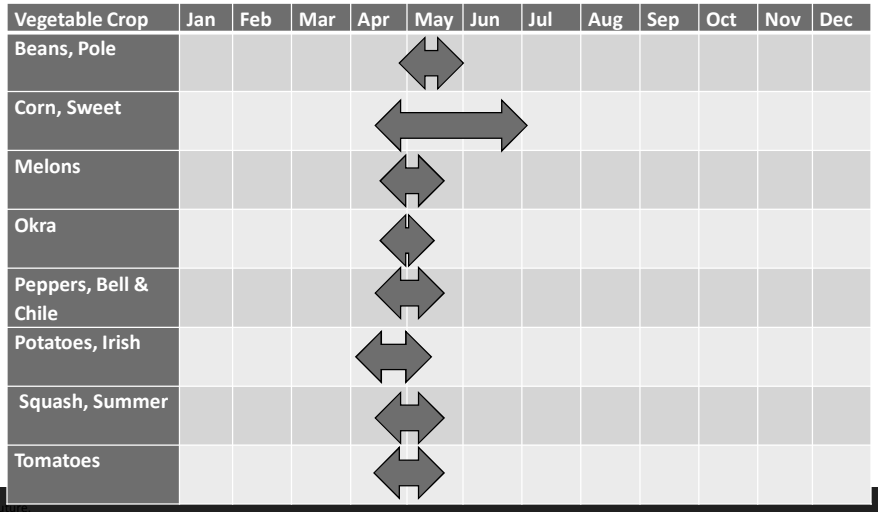
•Vegetables grown for their 'fruit' (tomatoes, peppers, melons, squash) require at least 8 hours of sunlight per day for healthy growth

- warm season vegetables prefer temperatures in the 75 – 85 F range and will be injured or killed by frost
- Check the soil temperature too
- Best as transplants

Warm Season

- Start Seedlings 4-8 weeks before last frost
- Harden off tender seedlings
- Protect from cold and insects
- Set out when soil and outside temperatures are warm

Warm Season Vegetables–Planting Guide for NM Area 2 (Albuquerque, Los Lunas, Santa Fe)



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Direct seeding or transplanting?

- Some plants don't take transplanting well (cucurbits, root crops, beans and peas).
- Some do (tomato, pepper, eggplant, greens of all types, early corn).
- All plants that transplant well do just as well direct seeded.
- Can gain a week or two, depending on soil temperatures.
- Cost, hassle trade-offs.
- May help get ahead of weed problems.

Harvest at the Right Time

- Know your vegetables.

  -Premature harvest reduces amount of flavor compounds.

  -Late harvested may result in a fibrous, less tender, bland or bitter crop.

Diseases + Disorders

- Many diseases + viruses
- Plant at the correct time
- Crop rotation limits
- Protect from insects
- Some varieties more resistant
- Bring to Extension Office to I.D.

Attract pollinators and beneficials

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Additional Resources

- NMSU Extension Publications -- https://aces.nmsu.edu/pubs/_h/
  - H – 252 Hoop House Vegetable
  - H-457 Home Vegetable Gardening
  - H-457B Growing Zones and Recommend Varieties
  - H-216 When to Harvest Vegetables
  - H-220 Starting Plants Early
  - And many more ...

Additional Resources

- Video on Building Mini-hoops – low cost hoop tunnels
  - https://www.youtube.com/watch?v=cQ51oT0mns4
- Written plans for mini-hoops and raised beds
  - https://extension.umaine.edu/york/wp-content/uploads/sites/28/2018/06/raised-bed-plan.pdf
- USU Extension Pub – Planting the Fall Garden
  - https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1319&context=extension_curall
- Texas Agri-life Extension – Fall Vegetable gardening
  - https://agrilifeextension.tamu.edu/browse/featured-solutions/gardening-landscaping/fall-vegetable-gardening-guide-for-texas/

THANK YOU

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