GREENHOUSE CUCUMBERS

Trends & Varieties

Johnny's Selected Seeds



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WELCOME

Chat questions will be collected for Q&A throughout the presentation.

Please submit questions before we begin the Q&A. Once Q&A begins, we may not see new questions.

All audience chat messages are private.

Johnny's Research Farm

Located in Albion, Maine (USDA zone 5b)

- **200 Acres Managed**
- **11 Farm Sites**
- **80+ Acres Consisting of:**
  - **Trial Crops**
  - **Breeding**
  - **Seed Production**
  - **Cover Crops**



Johnny's Research Farm

Located in Albion, Maine (USDA zone 5b)

3.3k+ **Varieties planted and evaluated at our farm**

30 mi. **Bed feet sown for our seed trials**

165+ **New varieties selected for the 2027 season**

Note: Additional trialing occurs on partner farms across the country. The varieties planted and miles of bed feet listed above only represent the portion of trialing conducted on our home farm.

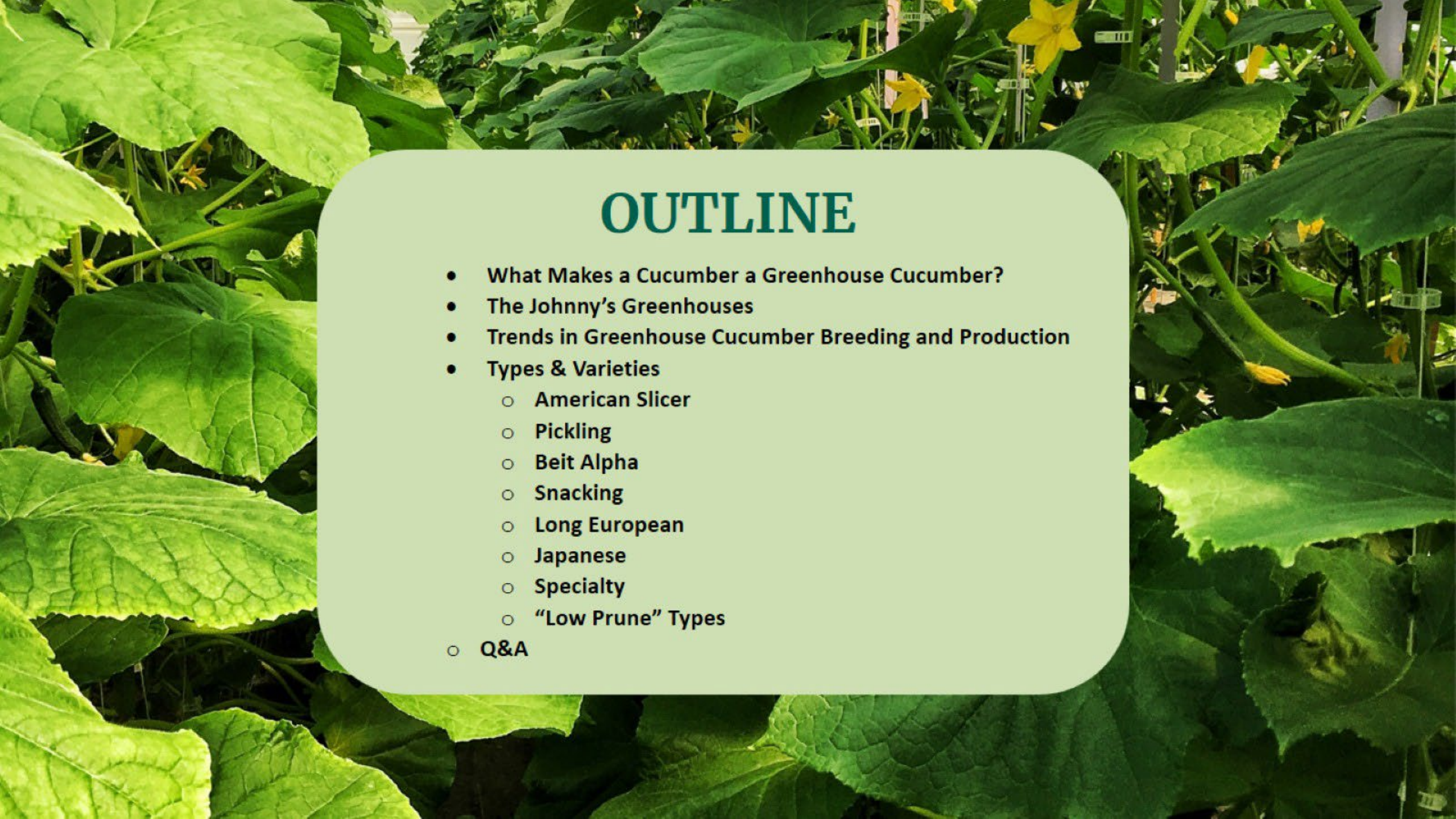


OUR PRESENTER



Nathaniel Gorlin-Crenshaw
Product Manager

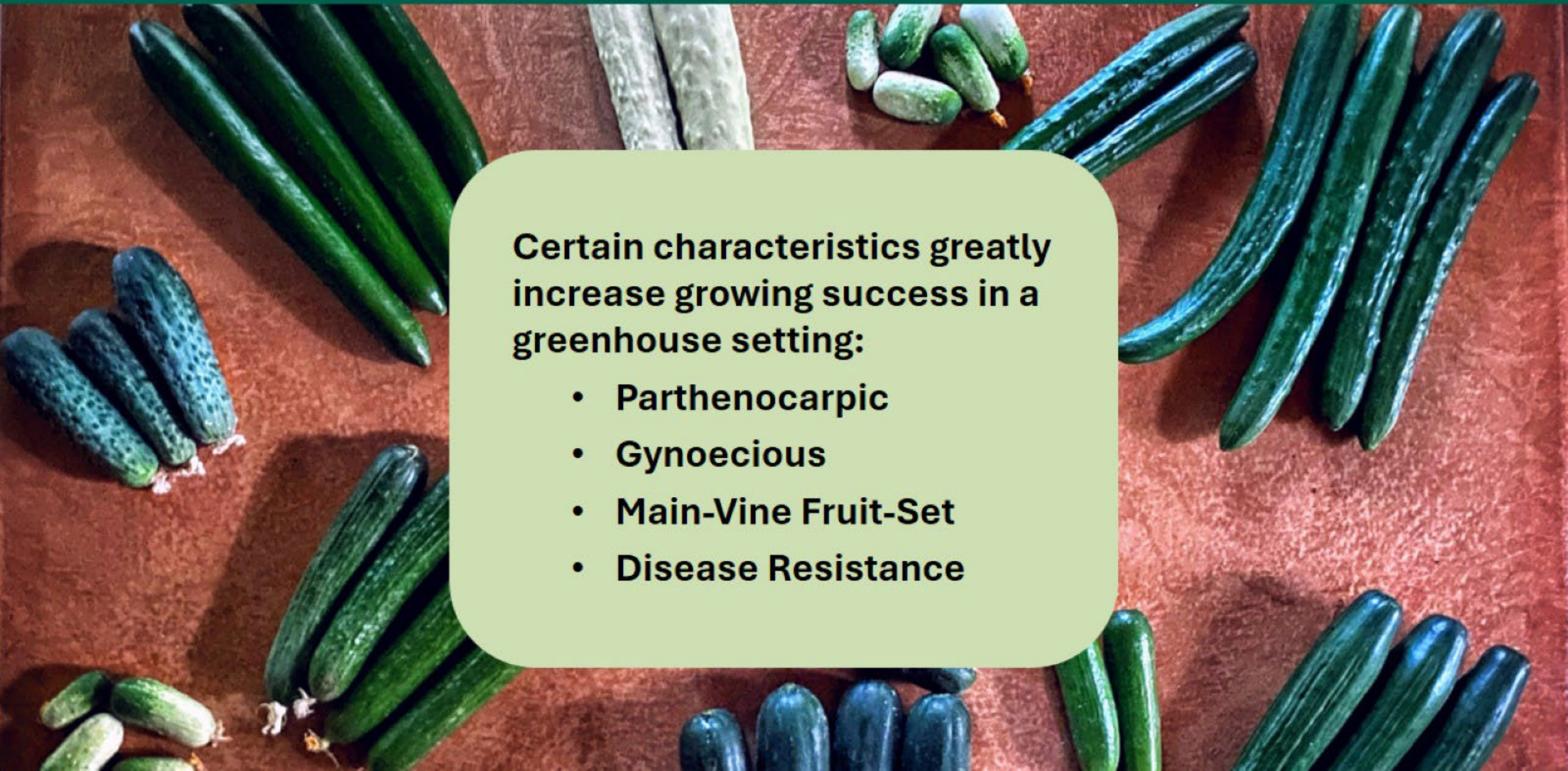




OUTLINE

- What Makes a Cucumber a Greenhouse Cucumber?
- The Johnny's Greenhouses
- Trends in Greenhouse Cucumber Breeding and Production
- Types & Varieties
  - American Slicer
  - Pickling
  - Beit Alpha
  - Snacking
  - Long European
  - Japanese
  - Specialty
  - "Low Prune" Types
- Q&A

What Makes a Cucumber a Greenhouse Cucumber?



Certain characteristics greatly increase growing success in a greenhouse setting:

- Parthenocarpic
- Gynoecious
- Main-Vine Fruit-Set
- Disease Resistance

Disease Resistance Matters!



Powdery Mildew Resistance:
Sashimi vs. Tasty Jade



Spider Mite Resistance:
Grafted vs. Ungrafted

The Johnny's Greenhouses

- 100' long high tunnels with 90' beds
- 5 beds to a house, two rows per bed, roughly 16" between-row & 12" in-row spacing
- Planting into soil, typically mid-late May
- No supplemental heat
- Automated roll-up sides, fan & roof vents
- Sides screened off to keep cucumber beetles out and beneficial insects in
- Landscape fabric for weed suppression



The Johnny's Greenhouses



- **Trellis using roller-hooks**
- **Prune each plant to a single leader**
- **"Lower and lean"**
  - Doesn't work well with so many different varieties growing at such different rates
  - Faster growing varieties outpace/shade out the slower/more compact ones
- **"Lower-and-Coil"**
  - Plants stay in the same relative space on the bed, trellis is lowered slowly, and the vine coiled in a wide loop on the bed
  - Short stake and twine "retaining fence" of a sort built midway through the season to keep vines out of the pathway
  - Lower leaves pruned to that they don't break/rest on the ground as the vines are coiled
  - Gets a little messy towards the end of the season, but solved the growth rate issue fairly well
- **Harvest M/W/F until mid-September**

Growing for Data

Agronomic data:

- Plant habit and vigor at various life stages, marketable yield, observed disease resistances, etc.

Qualitative notes:

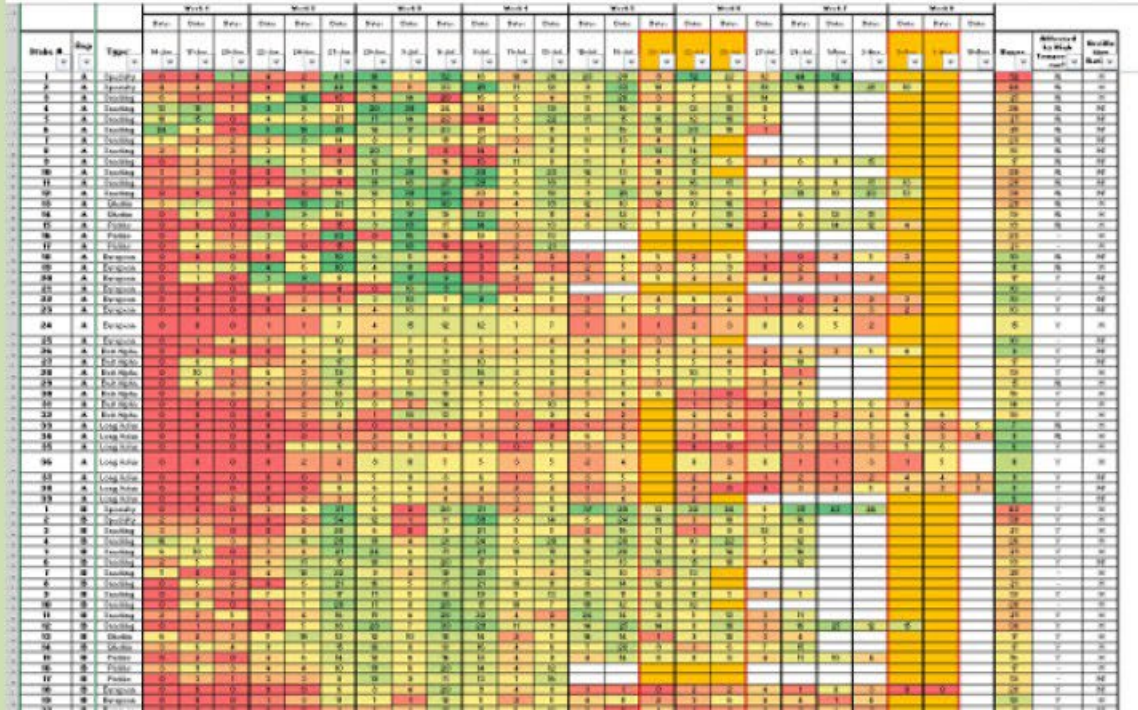
- Fruit appearance and uniformity, eating quality, etc.

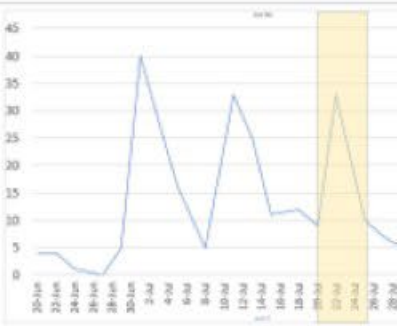
Information is used for:

- Variety selection, internal education, and grower-facing resources & presentations.

The fruit we pick goes to our employee owners & local food pantries via our Community Harvest program.







General Trends in Greenhouse Cucumber Breeding & Production

Labor saving traits in demand

- Slow to trickle in for cucumbers
- 'Polite' plant habits- compact with tighter internodes and more fruit-per-node to reduce pruning needs
    - Flip side is that these types of plants are much harder to keep going in lower-input systems
- Demeter the first of our "Low-Prune" types

Wider market acceptance of more specialty types

- You can buy Long European and Beit alpha cucumbers in US supermarkets now, more customer familiarity generally



General Trends in Greenhouse Cucumber Breeding & Production

One of the few greenhouse crops where there is a significant focus on organic seed

- Hopefully, this continues, but unfortunately, organic productions are often the first thing to be cut by large companies when there are issues.

Improved Disease Resistances

- Diseases will continue to worsen with climate change

Grafting

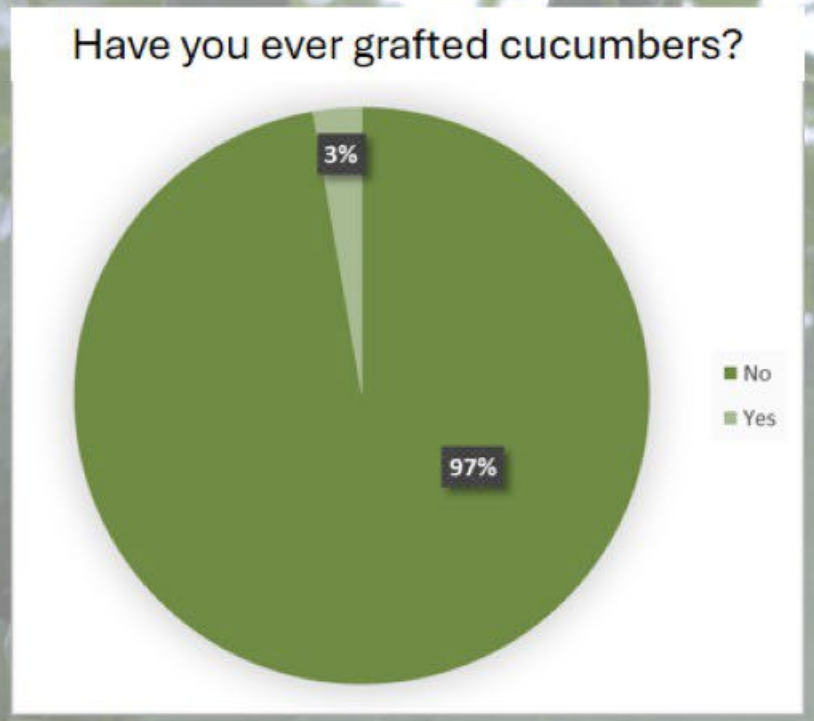
- Still rare in the US, but globally, a very common practice

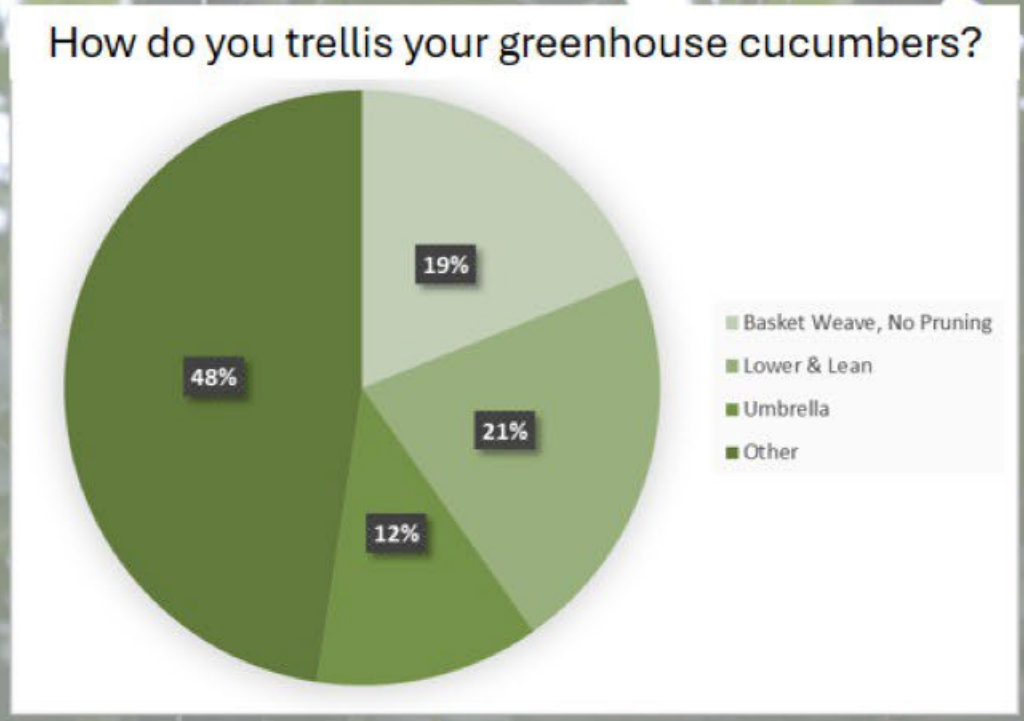




Grafting & Trellising Surveys

Grafting & Trellising Surveys






Cucumber Types
and Some Varieties



American Slicer

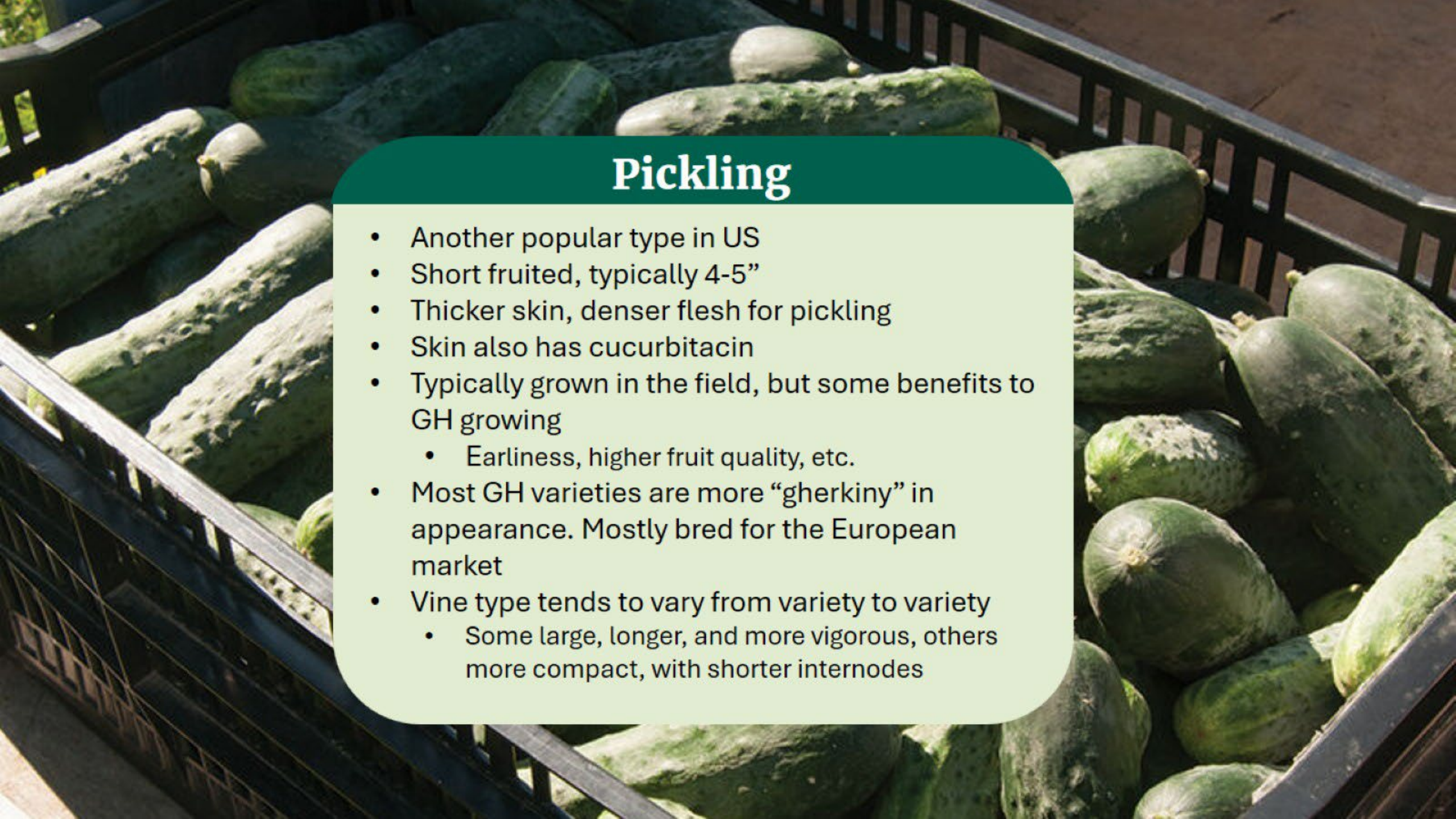
- Most popular type in US, what most growers and customers are familiar with.
- Fruit are typically in the 7-9” range
- More durable, with a thicker skin
  - Slower to dehydrate compared to thin-skinned cucumber types
- Worse eating quality- thick skin has higher concentrations of cucurbitacin, internal quality tends to be less crisp
- Vines tend to be longer, more vigorous, with longer internodes

American Slicer — Popular Variety

Corinto

- **IR**: CMV, CVYV, PM
- High performance but expensive
- Very strong plants, typically some of the fastest growing and most resilient in trial
- Very high yields of uniform cucumbers
- Thicker skin, more bitter flavor





Pickling

- Another popular type in US
- Short fruited, typically 4-5”
- Thicker skin, denser flesh for pickling
- Skin also has cucurbitacin
- Typically grown in the field, but some benefits to GH growing
  - Earliness, higher fruit quality, etc.
- Most GH varieties are more “gherkiny” in appearance. Mostly bred for the European market
- Vine type tends to vary from variety to variety
  - Some large, longer, and more vigorous, others more compact, with shorter internodes

Pickling — Popular Variety

Excelsior

- **HR**: S, TSP **IR**: CMV, CVYV, PM
- Blocky “American” pickler
- Longer vines with wide-spaced internodes
- Typically 1 fruit per node
- Can have issues with hollow heart and fruit abortion due to stress

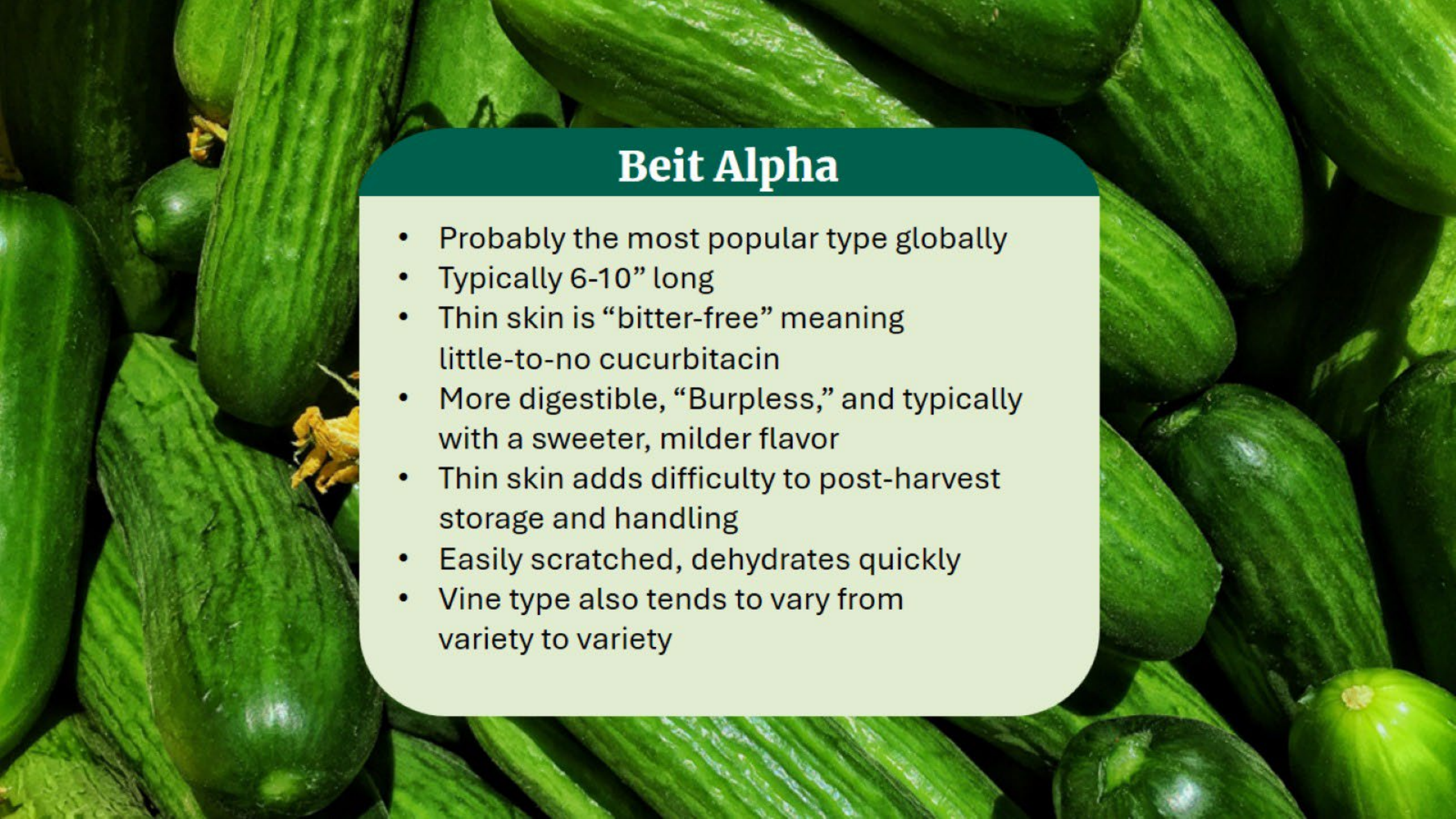


Pickling — Popular Variety

Adam Gherkin

- **IR**: S, CMV, PM
- More traditional “Gherkin” type
- Smaller fruit than an American-style pickler, covered in tiny spines
- Very early, with a more compact plant, multi-fruiting
- Vines peter out relatively quickly





Beit Alpha

- Probably the most popular type globally
- Typically 6-10” long
- Thin skin is “bitter-free” meaning little-to-no cucurbitacin
- More digestible, “Burpless,” and typically with a sweeter, milder flavor
- Thin skin adds difficulty to post-harvest storage and handling
- Easily scratched, dehydrates quickly
- Vine type also tends to vary from variety to variety

Beit Alpha — Popular Variety

Socrates

- **HR**: TSP, S **IR**: PM
- Moderately larger fruit than Katrina. Can be harvested at a smaller size if desired
- “Average” plants: shorter than Corinto, but not compact either
- Good yields, though typically a bit lower than Katrina
- Pleasant cucumber flavor, texture can be a little less crisp, but still good



Beit Alpha — Popular Variety

Katrina

- **HR**: S **IR**: CMV, PM, CVYV
- Medium sized fruit, halfway between a snacker and a larger fruited variety like Socrates.
- More compact vines, tend to be a little more cold sensitive.
- Very high yielding - typically among the best in our trial each year.
- Good eating quality - pleasant cucumber flavor, with a crisp texture.
- Shown good heat resistance in our trials

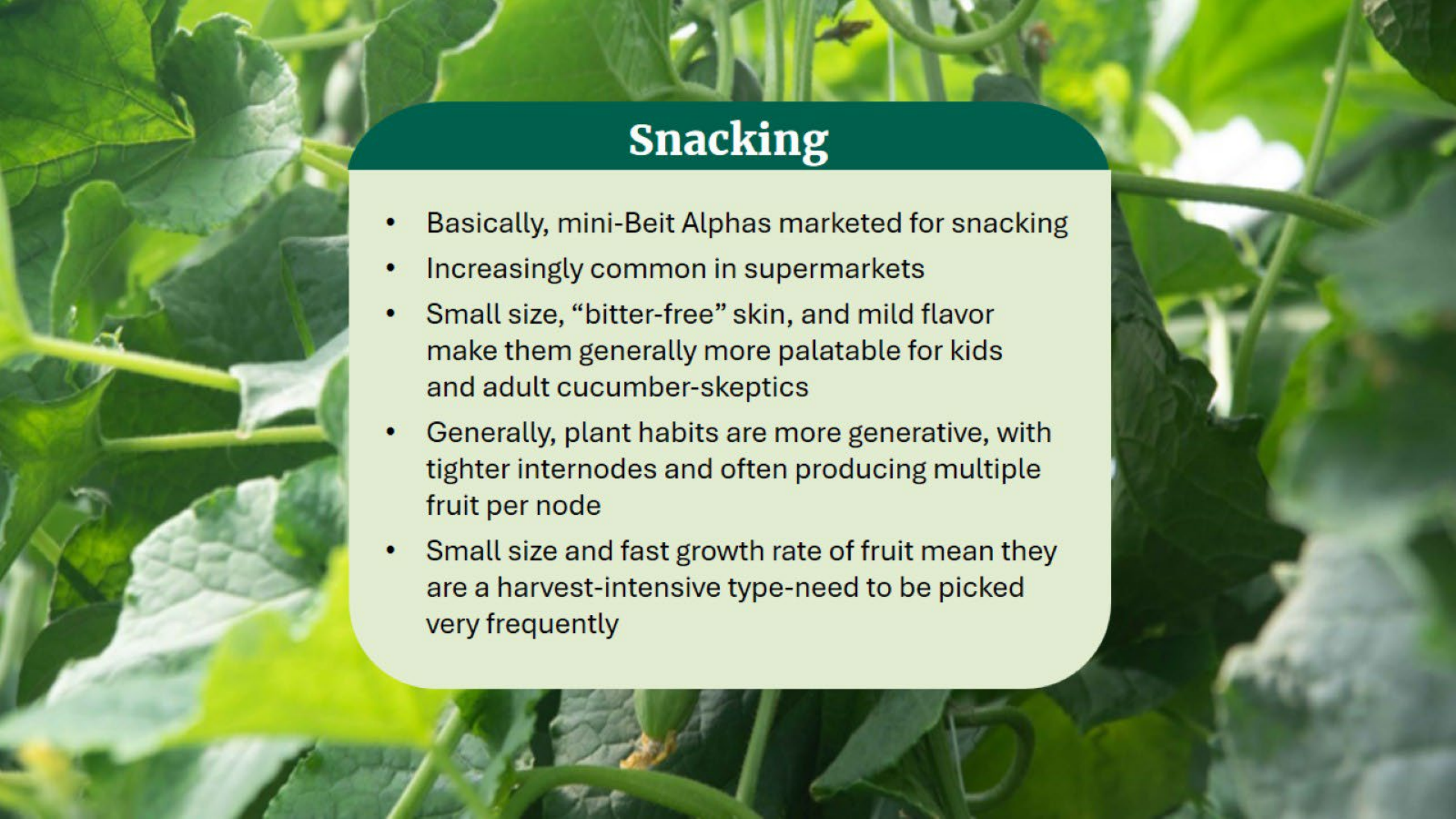


Beit Alpha — Popular Variety

Diva

- JSS-bred variety
- **HR**: S **IR**: CVYV, PM
- Older variety, more aimed at home garden use
- Very late, very low yielding, monoecious, less uniform
- Please don’t grow this in your commercial greenhouse





Snacking

- Basically, mini-Beit Alphas marketed for snacking
- Increasingly common in supermarkets
- Small size, “bitter-free” skin, and mild flavor make them generally more palatable for kids and adult cucumber-skeptics
- Generally, plant habits are more generative, with tighter internodes and often producing multiple fruit per node
- Small size and fast growth rate of fruit mean they are a harvest-intensive type-need to be picked very frequently

Example:
‘Qwerty’



Note the shorter internodes, consistent heavy fruit set, and the multiple fruit set at some nodes

Snacking — Popular Variety

Qwerty

- **HR**: S **IR**: CMV, CVYV, PM
- Tighter internodes, multiple fruit per node
- Very high-yielding - topped our trial multiple years in a row
- Good fruit quality: highly uniform, glossy, and attractive
- Expensive seed



Snacking — Popular Variety

Picolino

- **HR**: TSP, S **IR**: CMV, PM, CVYV
- Higher fruit quality: darker color, glossier, crisper texture, and better eating quality
- Lower yielding for type, usually only one fruit per node
- Less compact vine





Long European

- Another type becoming increasingly common in Supermarkets
- Fruit typically 11-13 inches but can get even longer!
- Skin is also thin and “bitter-free”
- Similar issues with post-harvest handling & storage
- Fruit prone to “bottle-necking” around stem in colder conditions
- Plants tend to be longer with more widely spaced internodes
- Often has challenges with the plant supporting such a large fruit-load, and so can be “flushy”
    - Flower/fruit pruning can be helpful

Long European — Popular Variety

Poniente

- **HR**: S, **IR**: CMV, CVYV, PM
- Vines are longer, more vigorous and hold up well to PM.
- I've had it be negatively affected by especially high temperatures some years.
- Generally high-yielding for type, good fruit quality.





Japanese

- Longish fruit, typically 8–12 inches and narrower
- Slightly thicker skin than Beit Alpha and Dutch types, so slower to dehydrate and more durable to post-harvest handling.
- Slightly thinner skin than American Slicers and Picklers, and with very low levels of cucurbitacin, so better eating quality, no need to peel and, also falls into the “burpless” category.
- Plants tend to be monoecious, and around medium-length.
- My favorite type of cucumber

Japanese — Popular Variety

Sashimi

- **IR**: TSP, PM
- Newest long Asian-type cucumber specifically bred for greenhouse production.
- Both parthenocarpic and gynoecious, uncommon for a long Asian cucumber.
- It also has excellent PMR
- Maintains its crispness and a uniform shape over a wide range of sizes



Japanese — Popular Variety

Tasty Jade

- Oldie but a goodie
  - Great flavor, name recognition
- No disease resistance-
  - Usually the GH “canary”
- Monoecious





Specialty

- Sort of my catch-all for everything else
- The varieties you've thought about growing but are not sure you can sell.
- I obviously love cucumbers, especially the weird ones, so please bear with me

Specialty — Popular Varieties

Unagi

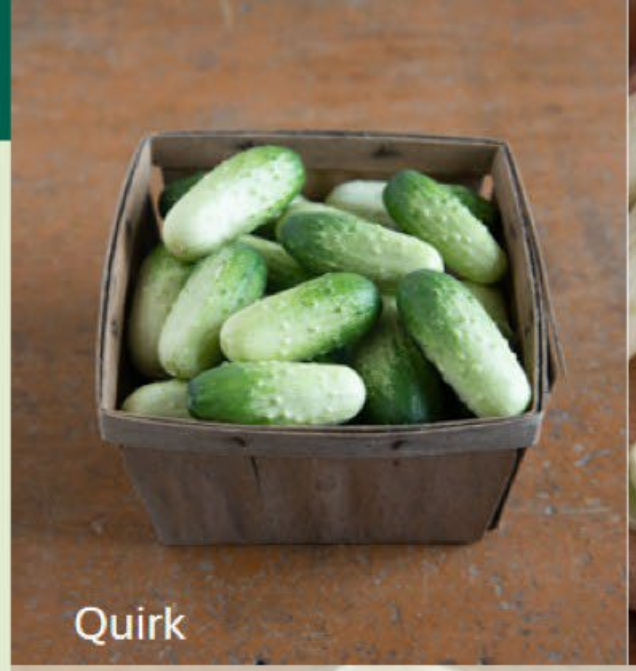
- **HR**: CMV, PM, TSP
- Unique cross between a Beit Alpha and traditional Japanese cucumber
- Spineless and seedless, excellent flavor (my favorite, actually)
- Excellent yields of straight, glossy, and uniform fruit.

Itachi

- Striking bright white coloration
- Great tasting, attractive, and highly productive
- Produces uniform yields of sweet, crispy, bitter-free cucumbers with small seed cavities

Quirk

- **HR**: PM **IR**: CMV
- Unique, stocky plants with short internodes producing many tiny fruit
- Great bite-sized fresh eating. A good companion to snack peppers and cherry tomatoes on farmer's market tables


Quirk


Itachi


Unagi

Specialty — The Limelight Trio

‘Margarita’, **‘Mojito’**, and **‘Gimlet’** are a complementary trio of lime-green greenhouse cucumbers with exceptional eating quality. All three have a crisper texture and sweeter, citrusy flavor with no bitterness.

Ideally customers will begin to associate the distinctive appearance with the improved eating quality.

Gimlet

- Snacker type
- Early, multi-fruiting, very high yields and short vines.
- Pairs very well with Qwerty for mixed quarts

Mojito

- Beit Alpha type
- Exceptionally high yields of 1–2 fruit per node that are remarkably uniform

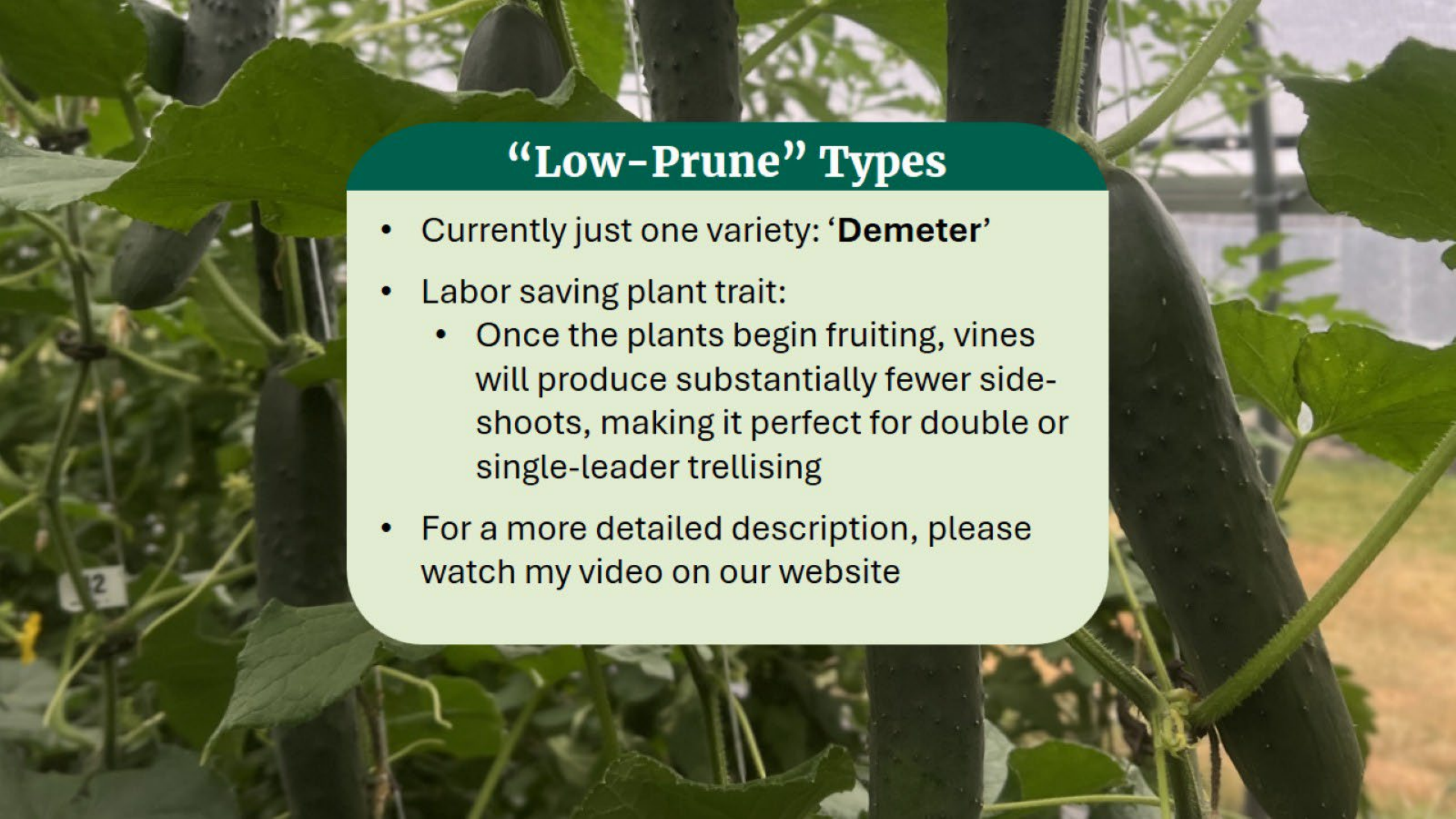
Margarita

- Japanese type
- Monoecious
- A farm crew favorite every year for its flavor


Gimlet


Mohito


Margarita



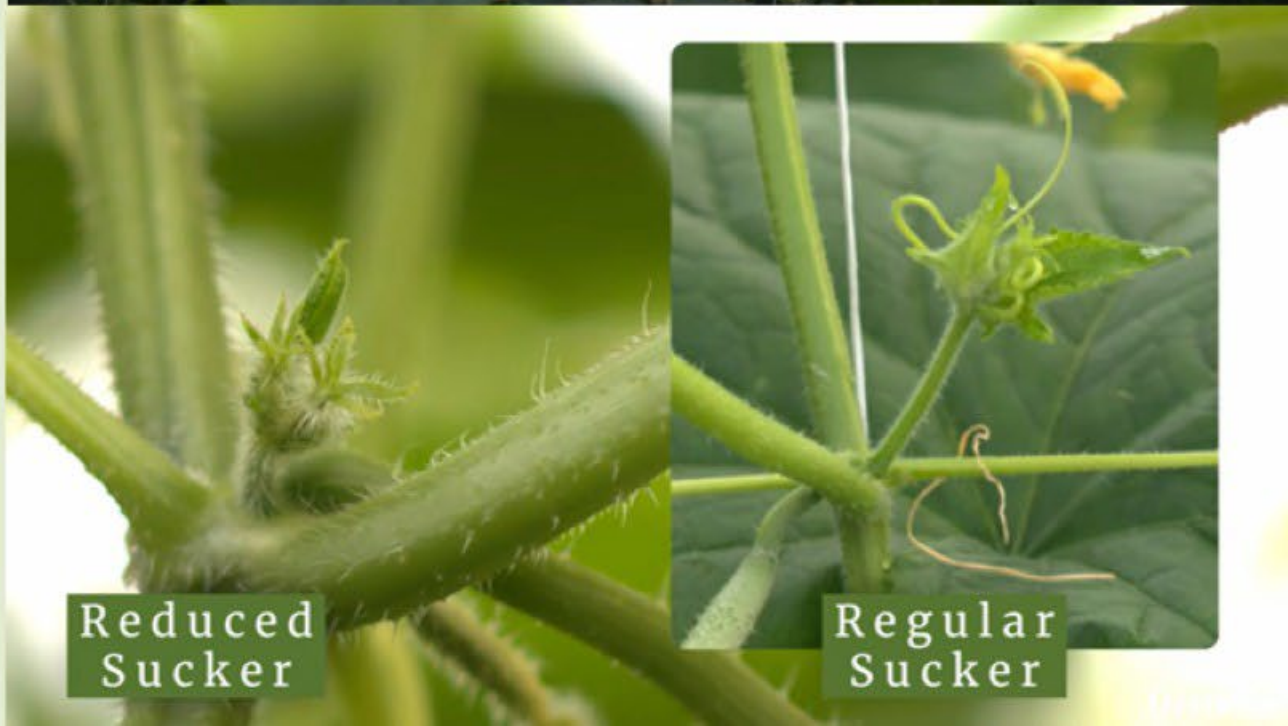
“Low-Prune” Types

- Currently just one variety: ‘**Demeter**’
- Labor saving plant trait:
  - Once the plants begin fruiting, vines will produce substantially fewer side-shoots, making it perfect for double or single-leader trellising
- For a more detailed description, please watch my video on our website

“Low-Prune” Type — Demeter

- **HR**: S **IR**: CMV, CVYV, PM
- American slicer type
- Early, high-yielding, with strong disease resistance,
- Unique "low-prune" plant habit
- Good fruit quality, best harvested at 7–8".
- Gynoecious and parthenocarpic.






Q&A

RESOURCES

Johnny's Greenhouse Cucumber Varieties

Plant Disease Resistance Codes

Greenhouse Cucumber Varieties | Comparison Chart (PDF)

Cucumber Types & Terminology | Johnny's Selected Seeds

Greenhouse Cucumber Production Guide | Tech Sheet (PDF)

Video | Lower & Lean Demonstration | An Intro to Greenhouse Rollerhook (or Tomahook) Trellising

Video | How to Prune Trellised Cucumbers to Optimize Yield & Reduce Disease Pressure

Video | 'Demeter' Low-Prune Greenhouse Cucumber

Cucumber Grafting — Advantages, Materials & Technique

Webinar | Fundamentals of Cucumber Grafting



Thank You

We hope you enjoyed our presentation

Johnny's Selected Seeds

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