PLANTS THAT SUPPORT HONEYBEES IN NORTH TEXAS

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@RootedinTX

WHY PLANTS MATTER

- **Healthy forage = resilient bees**
- **Nutrition strengthens defenses**
- **Hive health starts in the landscape!!!**

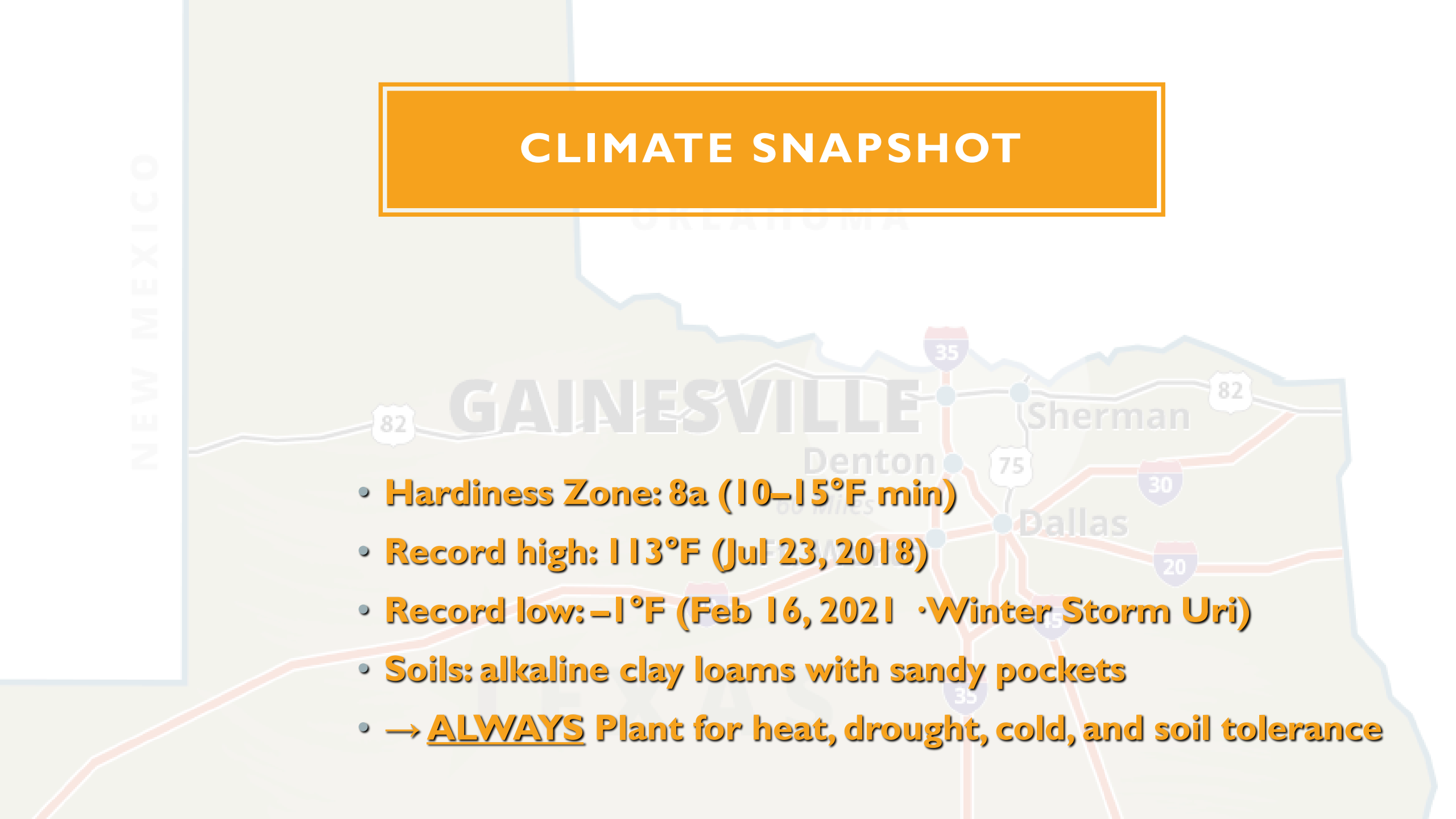
"The nutritional landscape surrounding a colony is as important as its genetics or management. Diverse, high-quality pollen and nectar sources make honey bee colonies more robust against stressors like parasites, pesticides, and disease."

— Juliana Rangel, Ph.D., Texas A&M AgriLife Research, Entomology

BEE PRESSURES TODAY

- **Pests:** Varroa · SHB · Wax moths
- **Habitat:** forage gaps · urban sprawl
- **Climate:** heat · drought · extremes

CLIMATE SNAPSHOT



- Hardiness Zone: 8a (10–15°F min)
- Record high: 113°F (Jul 23, 2018)
- Record low: –1°F (Feb 16, 2021 ·Winter Storm Uri)
- Soils: alkaline clay loams with sandy pockets
- → ALWAYS Plant for heat, drought, cold, and soil tolerance

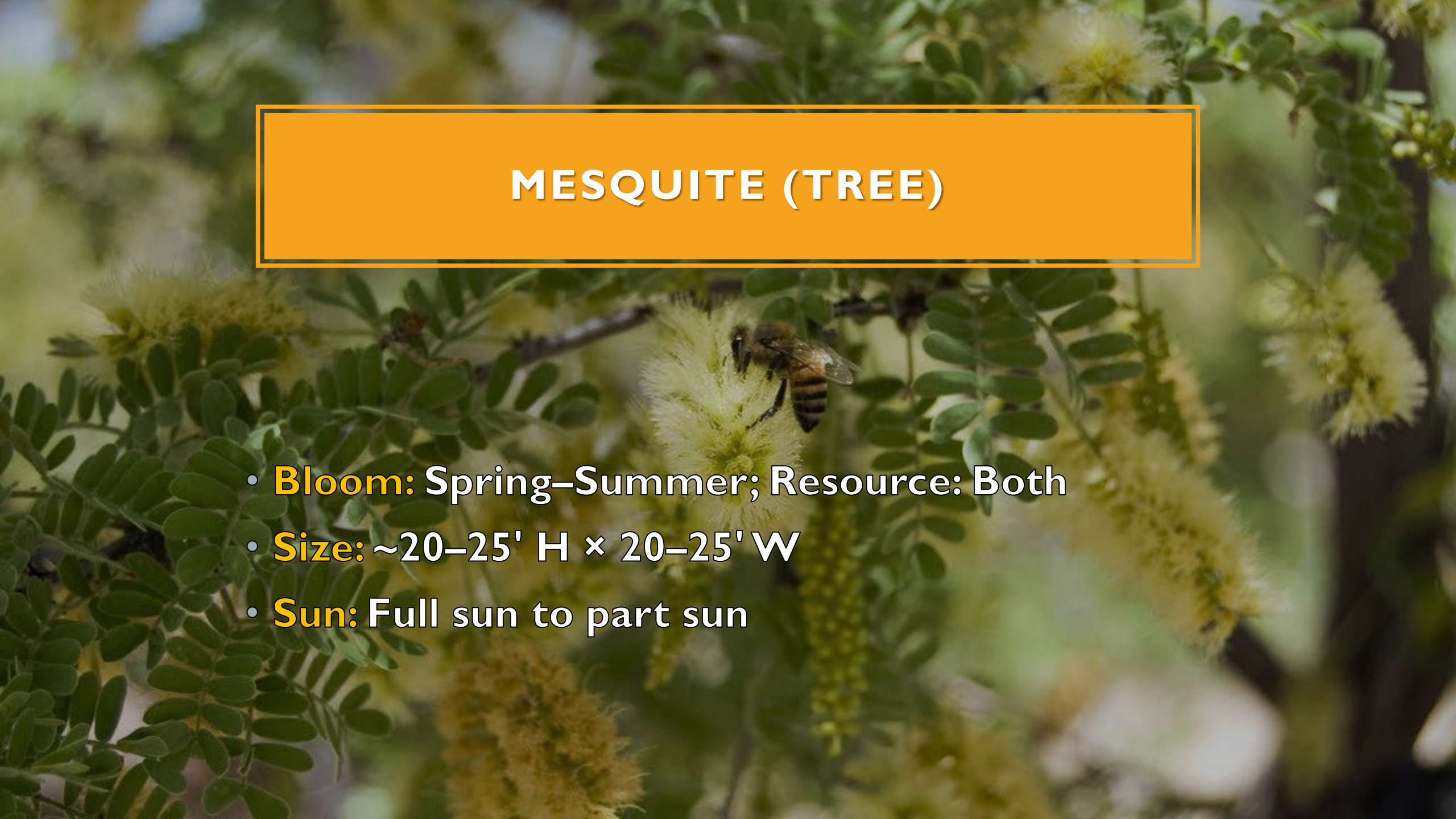
TREES VS. PERENNIALS

* **Trees: Powerhouse Forage**
  - Thousands of blooms in a 3-D canopy (20–40+ ft of vertical forage)
  - Large surface area → huge nectar & pollen yield
  - Anchor food sources in spring/summer?

Perennials: Patchwork Forage (Fill seasonal gaps when trees are not flowering)
  - Ground-level diversity, long bloom windows!
  - Easy to mass plant for quick bee attraction

Best Practice
  - Mix **trees, shrubs, and perennials** → continuous bloom
  - Scale up: large acreage = wildflower seeding; small lots = perennial blocks

MESQUITE (TREE)



- **Bloom:** Spring–Summer; Resource: Both
- **Size:** ~20–25' H × 20–25' W
- **Sun:** Full sun to part sun

DESERT WILLOW (TREE)

- **Bloom:** Summer–Fall; Resource: Nectar
- **Size:** ~18–25' H × 15–20' W
- **Sun:** Full sun to part sun

* and Chitalpa

HONEY LOCUST (TREE)

- **Bloom:** Spring; **Resource:** Both
- **Size:** ~30–40' H × 25–35' W
- **Sun:** Full sun to part sun

MEXICAN PLUM (TREE)

- **Bloom:** Spring; Resource: Both
- **Size:** ~20–25' H × 15–20' W
- **Sun:** Full sun to part sun

PERSIMMONS, TEXAS, AMERICAN, ASIAN

- **Bloom:** Spring–Summer; Resource: Both
- **Size:** TX 15–20' H × 12–15' W; American 25–35' H × 15–25' W
- **Sun:** Full sun to part sun

MEXICAN BUCKEYE (TREE)

- **Bloom:** Spring; Resource: Nectar
- **Size:** ~12–18' H × 10–15' W
- **Sun:** Full sun to part sun

SHRUBS OVERVIEW

- Bridges seasonal gaps
- Residential scale plantings
- Cluster for higher bee traffic

VITEX (STERILE SELECTIONS) (SHRUB/SMALL TREE)

- **Bloom:** Summer; Resource: Nectar
- **Size:** ~3.5–15' H × 3.5–15' W
- **Sun:** Full sun to part sun

STERILE VITEX

- **Shoal Creek**
  - Nearly seedless, low seed set
- **Delta Blues**
  - Patented, little to no viable seed
- **Summertime Blues**
  - Sterile
- **Blue Puffball**
  - Compact, seedless cultivar
- **Flip Side**
  - Heavy reblooming hybrid, sterile
- **Delta Breeze**
  - Reported sterile / low seed (less common)
- **Shoal Creek Improved**
  - Marketed as more reliably sterile than original

BUTTONBUSH (BIG SHRUB)

- **Bloom:** Summer; Resource: Both
- **Size:** ~8–12' H × 8–12' W
- **Sun:** Full sun to part sun

KIDNEYWOOD (BIG SHRUB)

- **Bloom:** Summer–Fall; Resource: Nectar
- **Size:** ~4–12' H × 3–10' W
- **Sun:** Full sun to part sun

YAUPON HOLLY (VARIABLE SHRUB)

- **Bloom:** Spring; **Resource:** Both
- **Size:** ~3–18' H × 3–15' W
- **Sun:** Full sun to full shade

Male plants = pollen source Female plants = nectar source

TEXAS SAGE (SHRUB)

- **Bloom:** After summer rains; Resource: Nectar
- **Size:** ~3–8' H × 3–8' W
- **Sun:** Full sun to part sun

ABELIA (SHRUB)

- **Bloom:** Summer–Fall; Resource: Nectar
- **Size:** ~3–6' H × 3–6' W
- **Sun:** Full sun to part sun

CHICKASAW PLUM (SHRUB/SMALL TREE)

- **Bloom:** Spring; Resource: Both
- **Size:** ~6–15' H × 8–15' W
- **Sun:** Full sun to part sun

ALOYSIA/ ALMOND VERBENA

- **Bloom:** Summer–Fall Resource: Nectar
- **Size:** Almond Verbena 5–10’ × 5–10’
- **Sun:** Full sun to part sun

- * Needs protection under 15F during establishment
  - Cover, Mulch replace every few years

PERENNIALS OVERVIEW

- Long bloom windows
- Mass in blocks for visibility
- Easy to scale up

PERENNIALS OVERVIEW

- **Mass plantings**
  - Large clusters attract more bees than scattered singles
  - Easier for foragers to collect efficiently
- **Flower shape preferences**
  - Open, accessible blooms (daisies, asters, sunflowers) = fast nectar/pollen access
  - Tubular blooms-- still valuable, especially for nectar foragers
  - Double-petaled, complex flowers = often poor forage (less nectar/pollen)
- **Takeaway**
  - Plant in **drifts/blocks** of simple, nectar-rich flowers to maximize bee visitation

GOLDENROD (PERENNIAL)

- **Bloom:** Fall; Resource: Both
- **Size:** ~3–5' H × 2–3' W
- **Sun:** Full sun to part sun

GREGG'S MISTFLOWER (PERENNIAL)

- **Bloom:** Late Spring–Fall; Resource: Nectar
- **Size:** ~1.5–2' H × 2–3' W
- **Sun:** Full sun to part sun

WHITE MISTFLOWER (PERENNIAL)

- **Bloom:** Fall; Resource: Nectar
- **Size:** ~3–6' H × 3–6' W
- **Sun:** Full sun to part sun

ANISE HYSSOP (PERENNIAL)

- **Bloom:** Summer–Fall; Resource: Nectar
- **Size:** ~2–4' H × 1.5–2' W
- **Sun:** Full sun to part sun

'AUTUMN JOY' SEDUM (PERENNIAL)

- **Bloom:** Late Summer–Fall; Resource: Nectar
- **Size:** ~1.5–2' H × 1.5–2' W
- **Sun:** Full sun to part sun

FALL ASTER (PERENNIAL)

- **Bloom:** Fall; Resource: Both
- **Size:** ~1–2' H × 2–3' W
- **Sun:** Full sun to part sun

MAXIMILIAN SUNFLOWER (PERENNIAL)

- **Bloom:** Summer–Fall; Resource: Both
- **Size:** ~4–7' H × 2–4' W
- **Sun:** Full sun to part sun

MEALY BLUE SAGE (PERENNIAL)

- **Bloom:** Spring–Fall; Resource: Nectar
- **Size:** ~2–3' H × 1.5–2' W
- **Sun:** Full sun to part sun

BLACKFOOT DAISY (PERENNIAL)

- **Bloom:** Spring–Fall; Resource: Both
- **Size:** ~1' H × 1.5–2' W
- **Sun:** Full sun

FOUR-NERVE DAISY (PERENNIAL)

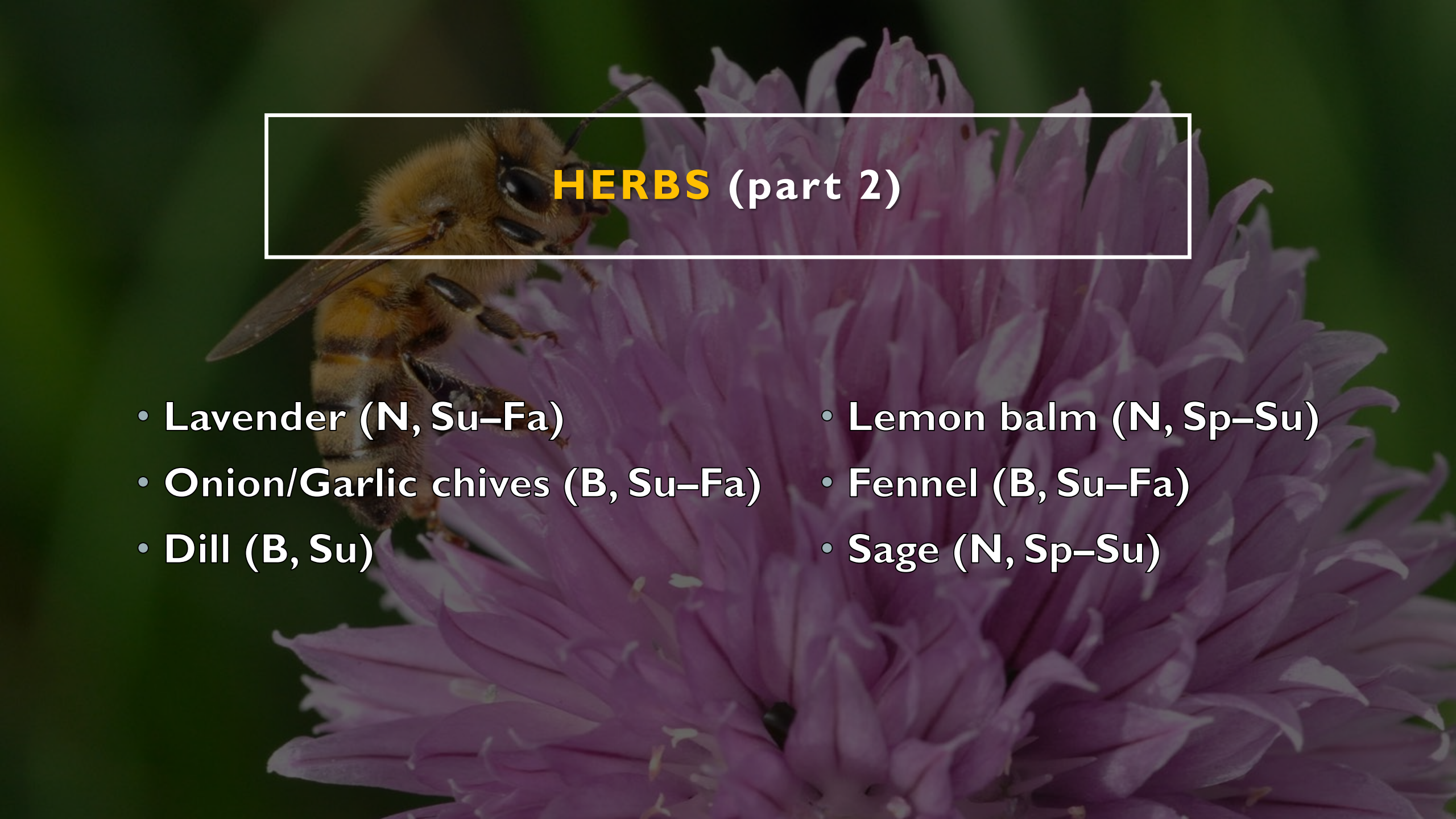
- **Bloom:** Spring–Fall; **Resource:** Both
- **Size:** ~1–1.5' H × 1–1.5' W
- **Sun:** Full sun to part sun

KITCHEN GARDENS FOR BEES (HERBS & VEGETABLES)

- Food for you = forage for bees!!!
- Extends bloom diversity
- Interplant for continuous bloom

HERBS (part 1)

- Basil (N, Su–Fa);
- Oregano (N, Sp–Su)
- Thyme (N, Sp–Su)
- Mint (N, Sp–Su)
- Rosemary (N, W–Sp)
- Borage (B, Su–Fa)



HERBS (part 2)

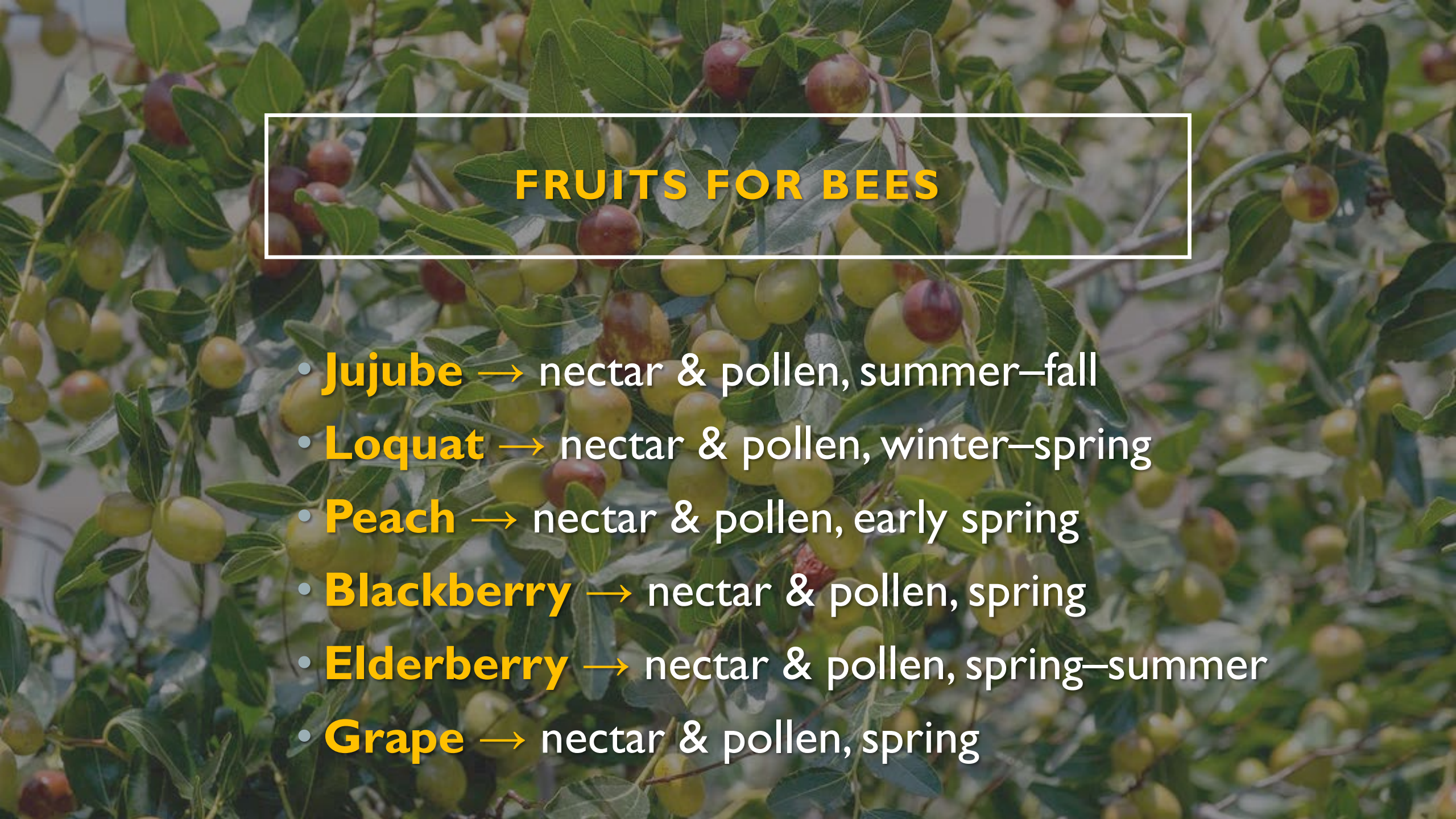
- Lavender (N, Su–Fa)
- Onion/Garlic chives (B, Su–Fa)
- Dill (B, Su)
- Lemon balm (N, Sp–Su)
- Fennel (B, Su–Fa)
- Sage (N, Sp–Su)

VEGETABLES FOR BEES

- Squash/cucumbers/beans (B, Sp–Su)
- Okra (B, Su)
- Southern peas (B, Sp–Su)
- Pumpkins/melons (B, Sp–Su)
- Brassicas (B, Sp-Fa)

VEGETABLES FOR BEES

- "Bees pollinate one-third of the food we eat, including high-value Texas crops like melons, berries, nuts and vegetables. A sustained decline in pollinator health could upend agricultural productivity, rural economies and ecosystem balance."— Garett Slater, Ph.D., Texas A&M AgriLife Extension honey bee specialist)



FRUITS FOR BEES

- **Jujube** → nectar & pollen, summer–fall
- **Loquat** → nectar & pollen, winter–spring
- **Peach** → nectar & pollen, early spring
- **Blackberry** → nectar & pollen, spring
- **Elderberry** → nectar & pollen, spring–summer
- **Grape** → nectar & pollen, spring

WEEDS FOR BEES

- **White clover** → nectar & pollen, spring–summer
- **Dandelion** → nectar & pollen, very early spring
- **Henbit** → nectar, late winter–spring
- **Chickweed** → nectar & pollen, winter–spring
- **Purslane** → nectar & pollen, summer

VINES FOR BEES

- **Passionflower** → nectar & pollen, spring–summer
- **American wisteria** → nectar, spring–summer
- **Virginia creeper** → nectar, spring–summer
- **Crossvine** → nectar, spring

WILDFLOWERS FOR BEES

- Broad forage: spring → fall
- Dense blooms = heavy bee use
- Benefits honey bees + native bees!
- Seed swaths cover acres easily
- Low input (once established)
- Mix annuals + perennials
  - Texas natives = tough + reliable

NATIVE WILDFLOWER TIPS

- Site prep = remove weeds, bare soil
  - Good seed-to-soil contact
- Right season: fall is best
- Avoid heavy mulch cover
- Water for establishment ?
- Patience — 1-3 years for seed bank

TOP 10 NATIVE WILDFLOWERS (NECTAR)

- ***ANNUALS***
- Indian blanket
- Plains coreopsis
- Lemon beebalm
- Annual sunflower

- ***PERENNIALS***
- Frostweed
- Cowpen daisy
- Purple prairie clover
- Eryngo
- Clasping coneflower

TOP 10 ADAPTED WILDFLOWERS

- *Mexican Sunflower*
- *Zinnias*
- *Cosmos*
- *Hollyhock*
- *Amaranth*
- *Cleome*
- *Bachelor's Button*
- *Larkspur*
- *Nigella*
- *Annual Sunflowers*

INVASIVE BEE-FORAGE (AVOID PLANTING)

- *Chinese tallow – N, late Sp–Su*
- *Privet (Ligustrum spp.) – N, Sp*
- *Japanese honeysuckle – N, Sp–Su*
- *Golden rain tree – N, Su*
- *Chinaberry – N, Sp*
- *Empress/Princess tree (Paulownia) – N, Sp*
- *Hairy vetch – B, Sp–Su*
- *Balloon vine – N, Su–Fa*
- *Coral vine – N, Su–Fa*
- *Sweet autumn clematis – N, Fa*
- *Vitex (non-sterile forms) – N, Su*

SUMMER DEARTH (MID-JULY–AUGUST)

- Hot/dry lull; nectar scarce
- Stress on colonies
- Plan for continuous bloom

PLANTING BEATS SUGAR WATER

- Nutrition > Calories
- Protein, lipids, micronutrients
- Resilience and immunity

"When given a choice, honeybees prefer forage that provides pollen, lipids, and micronutrients — nutrition far beyond what sugar water alone can offer."
— Juliana Rangel, Ph.D., Texas A&M AgriLife Research

CORE DEARTH BREAKERS

- Trees: Kidneywood, Desert Willow
- Shrubs: Vitex, Texas Lantana
- Perennials: Russian Sage, Henry Duelberg Salvia, 4-nerve daisy, Blackfoot daisy
- Annuals: Esperanza, Mexican Sunflower, Zinnia

MORE DEARTH HELPERS

- Basil; Borage; Fennel; Lavender
- Texas rock rose; Globe mallow
- Annual sunflower; Southern peas

BEE FORAGING PATTERNS (AM VS PM)

AM vs PM shifts — nectar peaks at different times by species

- ex) cotton & sunflowers peak mid-morning; goldenrod peaks PM

Daily variation — weather alters flow *(temp, humidity, light)*

Why it matters: better pollination, richer honey diversity

Action: observe & log plant activity in your apiary?

- Have you noticed "bee traffic jams" moving from one plant to another during the day?!

DIVERSITY & DIET (SCIENCE)

Bees seek pollen diversity even near monoculture crops

Study: colonies in sunflower fields collected from >10 species!

Balanced diet matters — protein, lipids, amino acids support brood

Plant diversity = stronger colonies

More brood, higher survival, improved immunity

Benefit to beekeepers: diverse forage → healthier hives & better

What's blooming near your hives right now?

ALL POLLEN IS NOT EQUAL

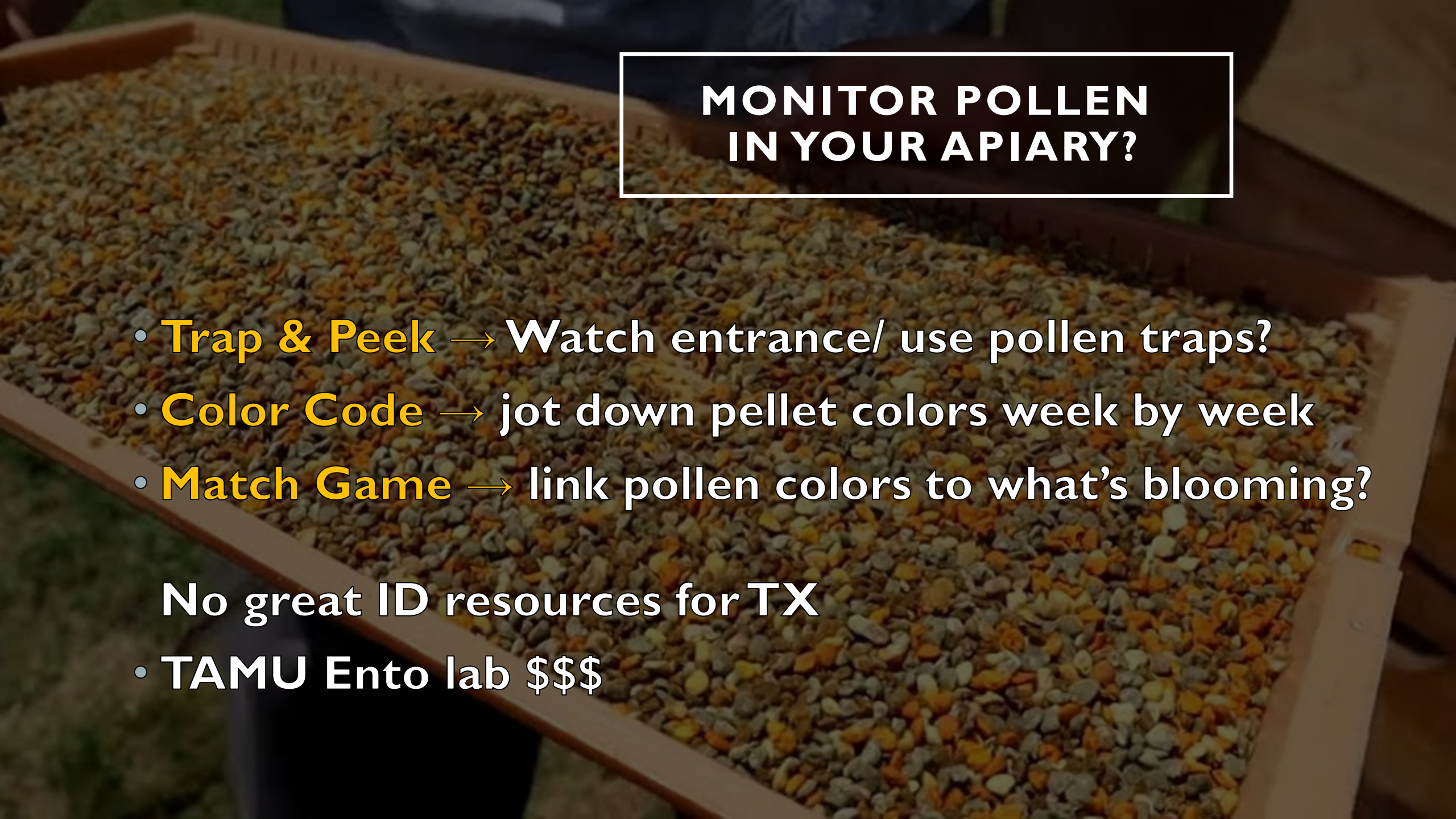
Protein % varies:

- *Sunflower ≈ 20–25%Goldenrod ≈ 20%+Pine ≈ 7% (poor quality)*
- Lipids & micronutrients differ by species
- Some pollens rich in sterols, key for immunity

Diet composition drives use

Colonies prefer diverse mixes over single-source pollen

Takeaway: more plant diversity = higher brood success



MONITOR POLLEN IN YOUR APIARY?

- **Trap & Peek** → Watch entrance/ use pollen traps?
- **Color Code** → jot down pellet colors week by week
- **Match Game** → link pollen colors to what's blooming?

No great ID resources for TX

- TAMU Ento lab $$$

HONEY QUALITY & DIVERSITY

Diverse blooms = layered flavors

- Polyfloral honeys = more complexity than single-source
- Nutritional edge
- Polyphenols & antioxidants vary by plant

GLOBAL PERSPECTIVE

Darker Texas honeys (e.g., goldenrod, sunflower, frostweed blends) frequently show phenolic content in the same range as Manuka

Flavor complexity often exceeds Manuka, because of diverse bloom sources

Takeaway: More plant diversity → better flavor and potential health benefits

HONEY PROFILES (EXAMPLES)

- **Floral source =** taste, color, aroma
- **Mesquite** → light, mild, smooth finish
- **Sunflower & Goldenrod** → darker amber, warm & spicy notes
- **Frostweed (Fall)** → rich amber, sometimes smoky/molasses-like
- **Polyfloral blends** → layered, complex flavors -- -unique to season

PLANTING RECIPE (SCALE UP)

- Trees (2–3) + Shrubs (10–15)
- Perennial blocks (8–12 species)
- Seed native wildflower swaths
- Grow Food – For People & Pollinators!

RESOURCES:

- Rootedin.com
- Wildflower seed mixes
  - Native American Seed
  - Turner Seed

- Chat GPT
- Google TAMU Bees

NTX PLANTS FOR BEES