

# So you have a greenhouse, now what?

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# Agenda

- Goals
- Seasonal Growing
- Propagation Techniques
- Basic Growing Supplies
- Managing Pests
- Water Quality
- Maintenance
- Equipment
- Vendors



# So you have a greenhouse...

- Now what?
  - Teaching?
  - Fundraising?
  - Research?
  - Production?
  - Student Projects?
  - Contests?
  - All of the above???



# Seasonal Growing

- Fall/Winter

- Poinsettias
- Christmas Cactus
- Chrysanthemums
- Vegetable Transplants
- Bedding
  - Cyclamen
  - Pansies
  - Snapdragons
  - Petunias
  - Dianthus
- Perennials

- Spring/Summer

- Herbs
- Vegetables
- Geraniums
- Bedding
  - Zinnas
  - Marigolds
  - Impatiens
  - Vinca
  - Begonias
- Ferns
- Cacti/Succulents



# Seeds vs. Cuttings/Plugs

## Seeds

- Inexpensive
- Offer more varieties
- Time consuming
- Germination problems
- Specialized growing environment



## Cuttings/Plugs

- Expensive
- Must book in advance
- Consistent growth



# Booking Product

- Spring Plants
  - Order in September for a January ship
- Poinsettias/Christmas Cactus
  - Order in February for August ship
- Seeds
  - Order early if you want specific varieties
- Cuttings
  - Order 4 months in advance of your ship date



# \$\$\$ Making Plants

- Boston Ferns
- Coleus
- Sweet Potato Vine
- Pothos Ivy
- Tomatoes
- Peppers
- Herbs (Basil!)
- Poinsettias
- Christmas Cacti
- Native and Adapted Plants
- Hanging Basket
- Succulents (Aloe)
- Roses (Self Propagated)
- Wandering Jew
- Lantana
- Mexican Heather
- Caladiums
- Bluebonnets
- Airplane Plants
- Local Interests

**DO NOT GIVE  
ANYTHING  
AWAY FOR  
FREE!**



# Propagation Techniques

- Cuttings - Intermediate
- Grafting - Advanced
- Seed – Student Friendly
- Division – Student Friendly
- Layering - Advanced

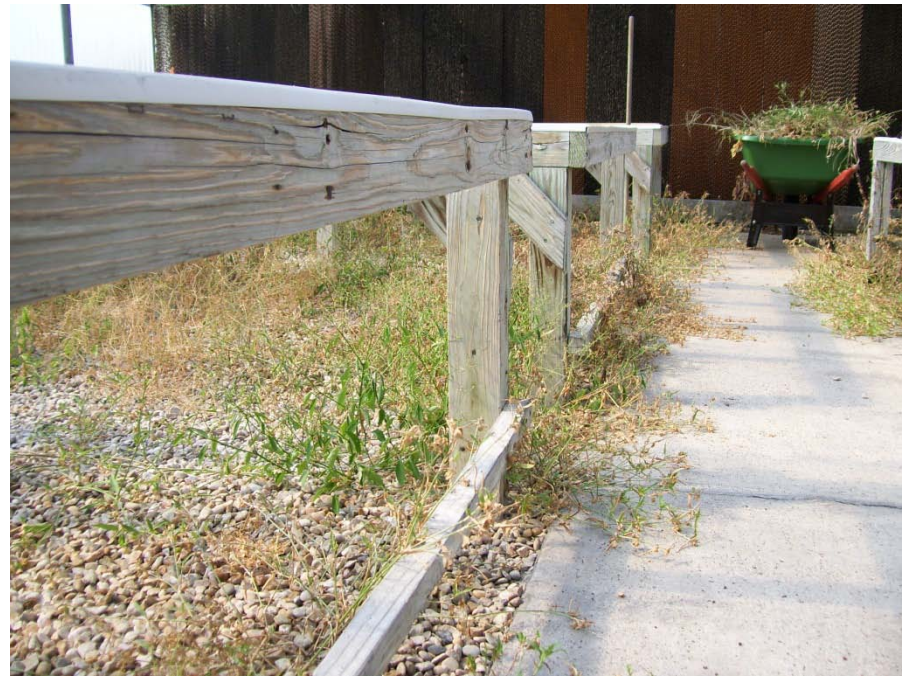


# Basic Growing Supplies

- Growing Media
  - Sunshine, Metro Mix, Pro Mix
  - Perlite ,Vermiculite, Rice Hulls
- Fertilizer
  - Use a quality greenhouse fertilizer such as Peter's, Jacks, or Scotts
  - Understand your water when making a selection
  - Do not use Miracle Grow
- Pots
  - Use new pots or sanitized pots
  - When choosing round pots look for Azalea style pots

# Weeds

- Solarize the greenhouse
- Manually remove
- Round Up
- Pramitol
- Rock Salt
- Pre Emergent granules (Preen, Amaze, Halt)
- Newspaper/Cardboard as a barrier



# Insects

- Yellow and Blue Sticky Cards
- Use Lady Bugs and Parasitic Wasps
- Get rid of infected plants
- Use water to loosen and remove insects
- Insecticides:
  - Insecticidal Soap – M-Pede
  - Tame/Orthene followed by Preclude Aerosols
  - Tristar, Safari, Talstar, or Marthon

- Vegetables
  - PDF available online
- Talk with your suppliers
- Switch Modes of Action



# Fungi and Diseases

- Manage moisture in the greenhouse
- Allow plants to dry slightly between waterings
- Water the soil not the leaves
- Fungicides
  - Actinovate
  - Banrot
  - Zerotol
- Use as a drench and follow the directions





# Water Quality

- Most misunderstood and neglected horticulture management technique
- Test your water yearly
- Everris Testing Lab
  - Robbie Abillama
  - robbie.abillama@everris.us.com
- Can fix problems with fertilizers or acid injection

# LOW ALKALINITY PROBLEMS

- Ca & Mg deficiencies
- Sudden drop in substrate pH
- Minor nutrient toxicity
- Bigger problem in long-term crops



# Growth Regulators

- Keep plants uniform and internodes short
- B-Nine
  - Spray, very forgiving
- Bonzi
  - Spray or drench, not forgiving
- Florel
  - Spray, not forgiving, cheap
  - Flowers will abort for 6 weeks



# Fans and Pads

- Clean your pads once a year
  - Let them dry out
  - Knock off the algae and mineral deposits
  - Use Zerotol, Triatholon, Greenshield or barley straw to control algae
  - Do not use bleach!!!
- Fans
  - Service your fans once a year
  - Tighten or change belts
  - Keep extra belts on hand
  - Keep and extra motor on hand



# Glazing Materials

- Clean your glazing material once a season
- Just like washing windows
- Dirt and dust will diminish your light levels
- Use a hose with some soap
- Rinse off well
- Patch holes in poly or replace based on useful life





# Disinfecting

- Disinfect your greenhouse after each crop
- Allow the greenhouse to be empty each year for a couple of weeks so that you can clean really well
- Limit your chances of diseases and insect outbreaks
- Clean irrigation system as well
- Zerotol, Triathalon, Greenshield or StarSan
- Use a Foaming Sprayer to apply the chemical – available from Nasco
- Disinfect any pots that are going to be reused

# Fertilizer Injectors

- Service your fertilizer injector once a year
- Send the unit to the company or fix yourself
- If the injector will not work soak it in a bucket of water for 24 hours
- Keep an extra injector on hand or a lower end kit
- You will need to have an RPZ backflow preventer installed before you injector
- Dosmatic Injectors are recommended

# Irrigation Supplies

- Dramm

- Red Head Water Breaker
- Color Storm No Kink Hoses
- Heavy Duty Shut Off Valves

- Netafim

- Filters
- Pressure Compensating Drippers
- Drip Line
- Dripper Accessories
  - Weights
  - Drip Stakes

# Chemical Applicators

- Dramm
  - Chemdose - \$2000
    - Apply chemical solution pot by pot
  - MSO Sprayer - \$1500
    - Hydraulic sprayer
  - Mini Autofog - \$2500
    - Applies chemical solution in a fine mist
    - Controlled by a timer
- Pump Sprayers
  - Gilmour Professional Quality
  - Hand or Backpack
- Use spray tank cleaner!
  - Neutralize

# Nursery/Floral Certificate of Registration

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## TEXAS DEPARTMENT OF AGRICULTURE

TODD STAPLES, COMMISSIONER

P. O. BOX 12847 AUSTIN, TX 78711-2847

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### NURSERY/FLORAL CERTIFICATE OF REGISTRATION

This is to certify that the person listed below is licensed to sell nursery/floral products at the indicated location in accordance with Texas Agriculture Code Chapter 71.

CLIFTON CAREER DEVELOPMENT SCHOOL  
1519 CORONADO HILLS DR  
AUSTIN TX 78752

Client Name: AUSTIN INDEPENDENT SCHOOL DISTRICT  
TDA Client No: 00299942

CERTIFICATE NO: 0007888

Effective Date: October 31, 2012

CERTIFICATE TYPE: NURSERY FLORAL CLASS 2

Expiration Date: October 31, 2013

MUST BE POSTED IN A CONSPICUOUS LOCATION

THIS CERTIFICATE IS NON-TRANSFERABLE