Achieving Plant Growth Management I - Success with PGRs, Jamie Gibson, Technical Lead, Syngenta Flowers

Today's Agenda:

- Pros/Cons of Using PGRs
- Plant Hormones Effect on Plant Growth
- Definition: Regulator versus Retardant
- Growth Regulators
- Growth Retardants
- Factors effecting successful control
- How to develop a PGR recipe

Reasons for NOT using PGRs:

- Requires a license to apply
- Requires specific equipment to apply
- Risk of misapplication
- Environmental considerations
- Restricted use on certain crops

Reasons for using PGRs:

- Cost effective
- Produces a well branched plant
- Fit more plants per cart
- Control flower timing
- Hold plants for sales window
- Healthier plants

What are you trying to control?

- Branching
- Flower removal
- Increase internode length
- Restrict internode length

Regulator (influence quality):

- Lateral branching agent (Florel®, Attrimec®)
- Supplemental synthetic hormone (BA-Cytokinin)
- Counter hormone treatment
- Informal term for growth retardant

Plant Growth Regulators:

- Configure®
- Florel®, Collate®
- Fascination®, Fresco®
- ProGibb®, T&O®, Florgib®

Plant Growth Regulators: Benzyladenine

- Stimulates branching and flowering
- Application timing is very important
- Does not transport readily within the plant so complete coverage is necessary.

Plant Growth Regulators: Ethephon phosphonic acid

- Commonly used to promote flower bud abortion and vegetative branching.
- Used during propagation to encourage vegetative growth.
- Typically applied as a spray
- Absorbed through the plant tissue, then, once absorbed, ethylene is released.
- Greatest efficacy when the spray solution is maintained at a pH between 4.5 – 4.7. Brandt® Indicate 5®

Plant Growth Regulators: Benzyladenine + Gibberellin Combinations

- Multiple applications
- Prevent lower leaf yellowing, or delay flower senescence on lilies
- Increase leaf and bract size on Poinsettias
- Increase stem length
- Commonly used to overcome an over application of a PGR

Plant Growth Regulators: Gibberellins

- Stimulates plant growth
- Applied to perennials to break dormancy
- Overcoming a PGR over application
- All little goes a long way, very important to trial on a small block

Plant Growth Retardants:

- A-Rest®, Abide®
- Topflor®
- B-Nine® WSG, Dazide®
- Citadel®, Altercel® (Cycocel®)
- Sumagic®, Concise®
- Bonzi®, Piccolo® (10x), Pac O™, Downsize®

Factors affecting success: Method of Application, Environmental Conditions, Crop, Stage of crop growth, Concentration

Factors that determine application technique:

- How is the chemical absorbed by the plant?
- What is the desired strength of the control?
- What application tools are available to you?
- What stage of growth is the plant currently in?

Application Techniques and PGR Protocols:

Young Plant

- Media Spray (0.5 gal./100 sq. ft)
- Media Sprench (0.75 gal./100 sq. ft)
- Cutting Spray: Pre or post pinch
- Cutting drench: Injector or watering can
- Liner Dip

Finished

- Spray: Spray to run-off (0.5 gal./100 sq. ft); Sprench (0.75 gal./100 sq. ft)
    - Spraying Crops: Spray to Runoff = 0.5 gallon per 100 square feet or 204 ml per m2
    - Spray early in the morning or late afternoon.
    - The crop should not be drought stressed
    - The longer the PGR remains wet on the tissues the higher the absorption.
    - Ensure complete coverage
- Drench: Finishing; Holding
    - Drench Volume: As pot size increases, usually the volume of drench recommended increases
      Bark substrates may require higher concentration
- Sprenching Crops: Volumes are higher then with a spray, but lower than a drench. The solution is applied so that the shoots are covered with a modest amount penetrating the growing media; Commonly used on aggressive bedding plants.

PGR Rate versus Concentration:

- Rate: (Example: 0.5 gal. per 100 square feet), Volume per container, Volume per area
- Concentration: (Example: ppm), Active ingredient amount per volume of solution; Drench, Spray or Dip