WEED MANAGEMENT

Economic Importance of weeds (Contd.)
- Competition
  - Nutrients, water and light
- Impede harvesting
- Clog drainage ditches
- Reduce yield (handout #1)
- 20-25 % total production costs

Economic Importance of weeds
- Soil and air temp-higher in bare ground
- Efficacy of the soil applied pesticides can be reduced
- Interfere with the operation of low volume irrigation

Weeds in Citrus Orchard
- Grasses
- Sedges
- Compositae
- Gourds
- Morning Glory
- Nightshades
- Milk Weed

Common weeds
- Guinea grass- *Panicum maximum*
- Brown top millet- *Panicum fasciculatum*
- *Verbana sp*
- Johnsongrass- *Sorghum halapense*
- Bemudagrass- *Cynodon dactylon*
- Ragweed- *Parthenium hysterophorus*
- Sowthistle- *Socnhus sp.*
- Climbing Hempweed - *Mikania scandens*

Common weeds
• Texas virgin bower - *Clematis drummondi*
• *Ipomea amnicola*
• Morning Glory - *Ipomea hederacea*
• *Ipomea spp.*
• Purple nightshade
• Silverleaf nightshade
• Black nightshade - *Solanum nigrum*
• Milkvine - *Cynachum unifarium*
contd.

7 Common weeds

• *Amaranthus palmeri*
• White poppy (Prickly poppy) - *Argemone albifloria*
• Henbit - *Lamium amplexicanle*
• Old’s man beard
• Phacelia
• Climbing milk weed

8 How to Control Weeds?

• Tillage
• Managed Cover crop
• Chemical Weed Control
• Biological Methods

9 Tillage

• Cultivation-no longer used
• Problems
  – Difficult to remove weeds from tree row
  – Will spread perennials: nutsedge
  – Water erosion on slopes
  – Compaction of soil

10 Managed cover crops

• Benefit: Low growing weeds predominate.
• Problems:
  – conversion of annuals to perennials
– Fert and water use by cover crops
– Rodents have a place to live

### Chemical Weed Control (Contd.)

#### Benefits
- Clean orchard to work
- Fewer host plants for fungi
- Roots return to upper layer of the soil
- Soil O.M. increases
- Increased yield
- Fewer snails and aphids

### Chemical Weed Control (Contd.)

#### History
- First materials (Handout # 2)
- Development of Chemical Weed Control for Texas Citrus orchards (Handout #3)

### Chemical Weed Control (Contd.)

#### Federal and State Regulations
- Label
  - properties, advantages, limitations, and precautions
- Application:
  - select rate of application based on the soil type
  - Calibration of the equipment

### Chemical Weed Control (Contd.)

#### Herbicide
- Toxicity-Handout # 4
- Safety- Handout # 5

### Classification-Herbicide (Contd.)

- Chemical affinity
- Timing of application (Handout #6)
  - preemergence
  - postemergence
- Persistence
– residual
– non residual

16 Classification-Herbicide
• Formulation (handout # 6)
  – Wettable Powder (WP)
  – Dry Flowable (DF)
  – Emulsifiable Concentrates (EC)
  – Water Soluble (WS)
  – Granular (G)

17 Requirements for an effective preemergence herbicide
• Safe for trees
• Long lasting weed control
• Broad spectrum of weeds controlled
• Low cost (handout # 8)

18 Requirements for an effective postemergence herbicide
• Safe for trees
• Broad spectrum of weeds controlled
• Must be translocated (systemic) to control perennial weeds
• Low cost (handout # 9)

19 Techniques of herbicide applications
• Spray from the boom
• Spot spray
• Injection into irrigation water
• Impregnated on fertilizers

20 Problems-Herbicides
• More phytophagous mites
  – More dust-fewer predators-more mites
• Vegetation shifts from annual toward perennials
• Resistant plants become established
• Injury to trees (http://hammock.ifas.ufl.edu/txt/fairs/27825)
• Water penetration may become a problem