Organic Research

Research Center Administrators Society
(SAAS/RCAS)
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Merritt Taylor, Warren Roberts, Jim Shrefler
Lane Agricultural Center
Oklahoma State University


Lane

Certified Organic Growing
U.S. Federal Guidelines - NOP

A USDA Marketing Program

- Approved in 2002 -

Is Organic Production a New Opportunity for Growers?

- Where Do We Begin?
- What Can We Grow ?
- What Problems Will We Encounter?
- How Will We Control Problems?
- Is Organic Production Possible?

Lane Center Organic Study Site - 2003

Previously Christmas Trees


RAYNE

Lime

Poultry Litter

- Approximately 2-2-2 Analysis
- 40-50 lbs of N per Acre
- 40-50 lbs of $P_2 0_5$ per Acre
- 40-50 lbs of K_2O per Acre

Fertilizer

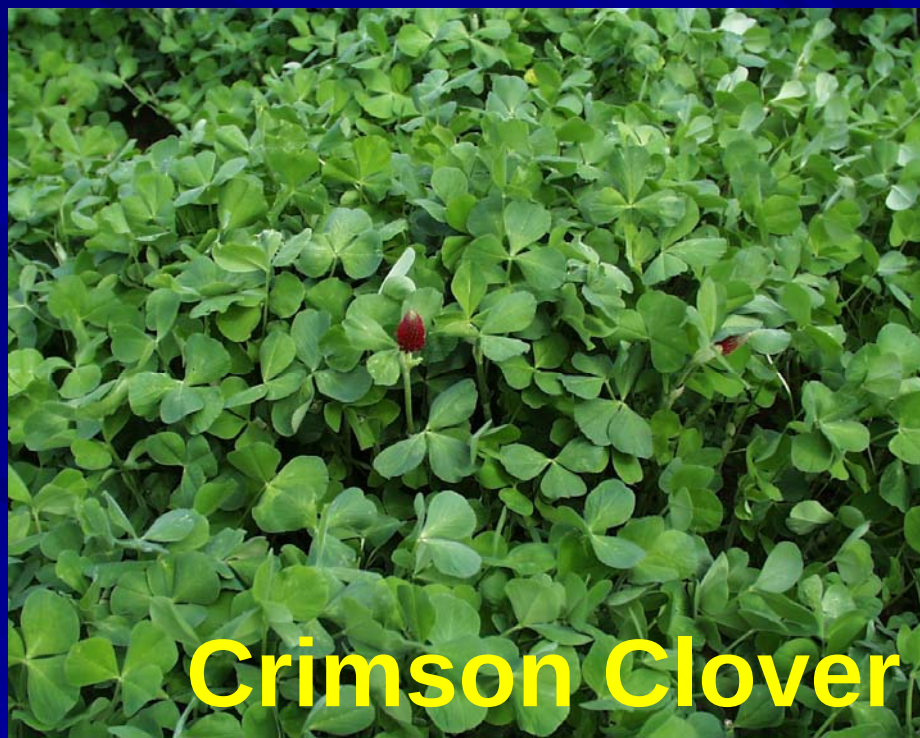
Crops

- Four Year Rotation
  - Tomatoes
  - Sweet Corn
  - Watermelon
  - Southern Peas
- Other Organic Support Projects

Four Years, Four Crops

- Use cover crops during winter
- Plant crops in the spring

Turnips



Crimson Clover

Sweet Corn

- Drip irrigation
- Good yields most years
- Problems
  - Corn Earworm –
    - Organic insecticides helpful
  - Raccoons

Sweet Corn

- No significant numbers of foliar feeding insect pests found throughout the season
- Treatments: Dipel + Pyrethrum at 3 day intervals during silking stage

Southern Peas

Southern Peas

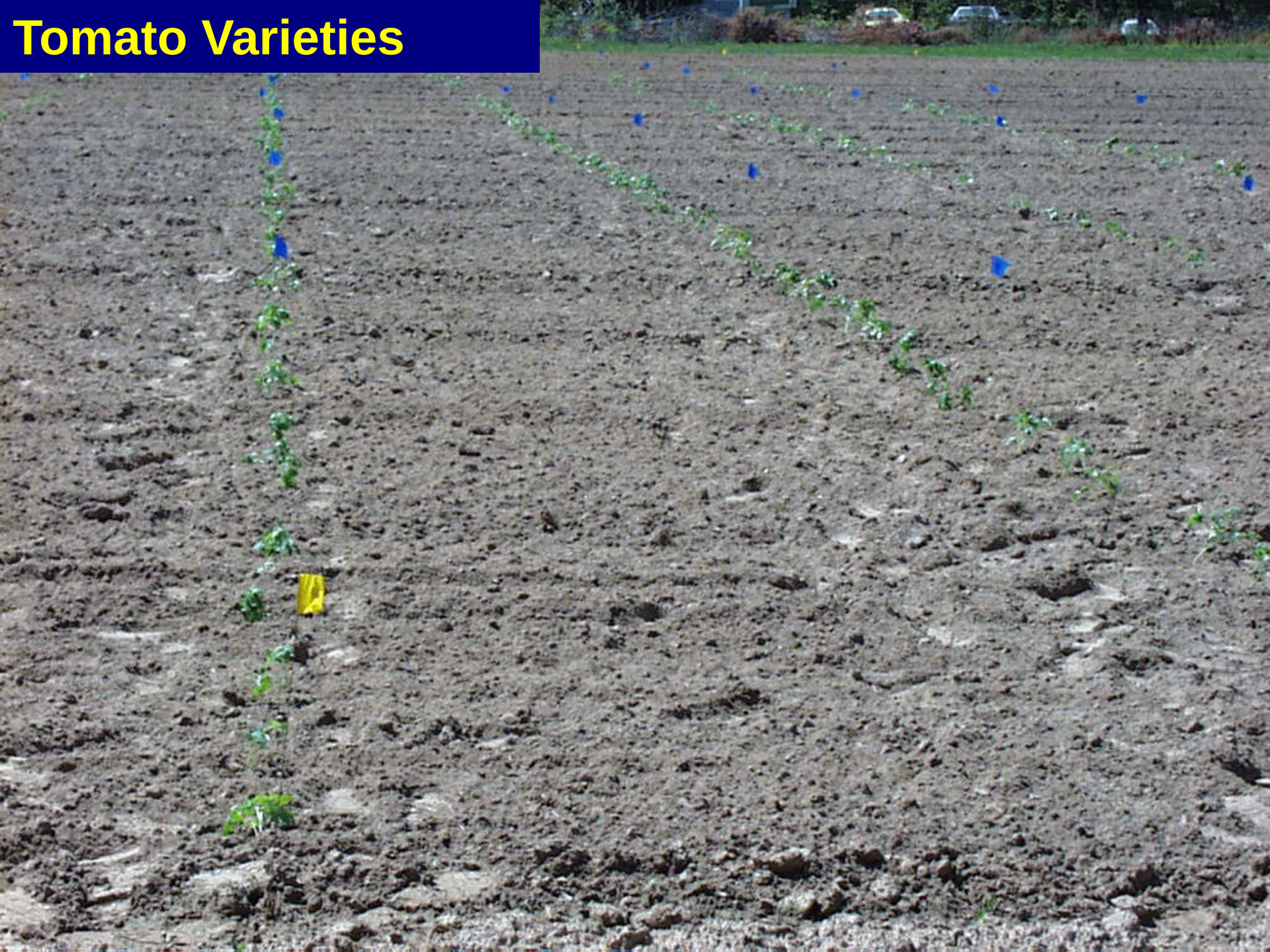
- Drip irrigation
- Good yields
- Few insect or disease problems
- Deer the main problem

Southern Peas on June 14

Watermelon

- Drip, plastic mulch, transplants
- Variable yield results
- Insects & diseases critical with melons
  - Trap crop
  - Organic insecticides
  - Fungicides?

Tomato Varieties



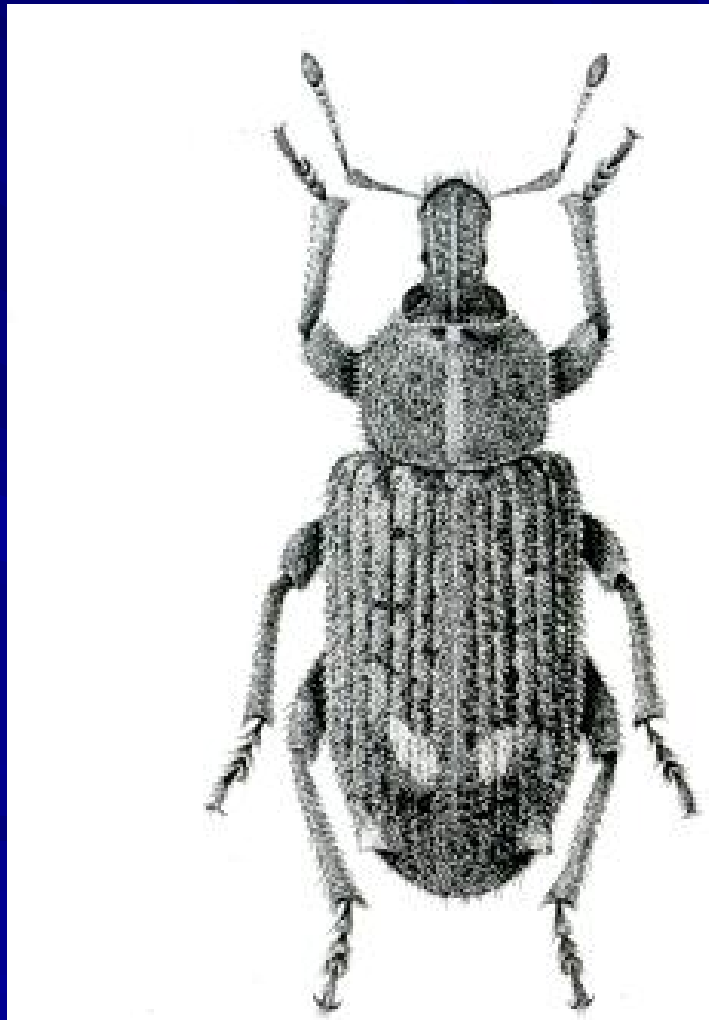
Determinant Tomatoes

Trellising Determinant Tomatoes

Trellising Determinant Tomatoes

Determinant Tomatoes

Vegetable Weevil



Vegetable Weevil

- Southern United States
  - Over-winters in soil
- 3/8 inch long
- Turnip, cabbage, tomato
- Damage on leaves, stems, and roots

Aphids

Aphids and Lady Bugs

Aphids on Tomatoes

Date	# aphids/leaf
May 27	3.93
June 11	6.93
June 17	1.00
June 25	0.13
July 9	0.00
July 14	0.57
Plants treated with azadirect (neem extract) on 6/11 and 6/14	

Striped Blister Beetles

Foliar Diseases

Disease Control – Copper Sulfate

Beet Curly Top Virus

Beet Leaf Hopper

What Have We Learned?

- Some vegetables can be Grown Organically in Oklahoma
  - Peas & Sweet Corn - easiest
  - Tomato and Watermelon
    - Considerable risk
    - Some critical needs

General Organic Vegetable Recommendations

Organic Matter

- Wonderful
- Holds Water
- Improves Drainage
- Holds Nutrients
- Improves Tilth

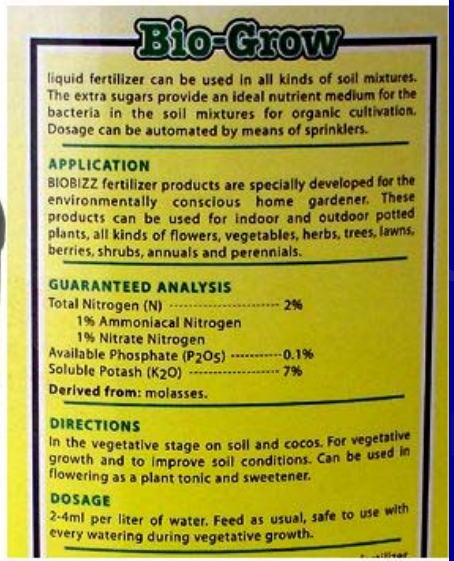
Ideal Soil

Raised Bed Gardening – Noble Foundation

Soil Fertility and Crop Nutrients

- Managed through
  - Tillage and cultivation practices
  - Crop rotations
  - Cover crops
  - Animal and crop waste materials
  - Certain allowed synthetic materials

Fertilizers



Animal Manure as Fertilizer

- Composted or Incorporated

Animal Manure Incorporated

- Incorporated 120 Days Prior to Harvest if Soil Contact with Edible Portion of Crop
- Incorporated 90 days Prior to Harvest if No Soil Contact with Edible Portion of Crop

Compost

- Temperature 131 - 170 F
- 3 days

Compost

- Temperature of 131 – 170 F
- 15 Days
- Turned a Minimum of Five Times

OMRI

- Organic Materials Review Institute
- National Non-Profit Organization
- http://www.omri.org

Fertilizers @ OMRI

- Aquatic Plants
- Ash Products
- Bone Meal
- Blood Meal
- Calcium Carbonate
- Chitin
- Compost
- Compost Tea
- Copper Sulfate
- Dolomite
- Feather Meal
- Corn Gluten
- Sodium Nitrate
- Fish Products

Fertilizers @ OMRI

- Guano
- Gypsum
- Green-Sand
- Humic Acids
- Manure
- Meat By-Products
- Microbial Products
- Molasses
- Neem Products
- Peat Moss
- Phosphate Rock
- Potassium Sulfate
- Sugar

Pest Control

- Primarily Management Practices
  - Physical, Mechanical, and Biological
  - Crop Rotation
  - Soil and Crop Nutrient Management Practices

Pest Management

- Sanitation Measures
  - Remove Disease Vectors, Weed Seeds, and Habitat for Pest Organisms
- Selection of Plant Species and Varieties
  - Resistance to Pests, Weeds, and Diseases
- When these practices are not sufficient, a biological, botanical, or synthetic substance approved for use may be used.

Materials for Pest Control

- Mulches
- Newspaper or other recycled paper, without glossy or colored inks.
- Elemental sulfur
- Soaps, insecticidal
- Sticky traps/barriers

OMRI Listed Insect Control

- Bacillus thuringiensis
- Boric Acid
- Calcium Polysulfide
- Citronella
- Copper Sulfate
- Diatomaceous Earth
- Garlic
- Limonene
- Lime Sulfur
- Neem Products
- Oil Products
- Pyrethrum
- Soap
- Spinosad
- Sticky Traps
- Sulfur

OMRI Listed Disease Control

- Beauveria fungus
- Boric Acid
- Calcium Polysulfide
- Copper Sulfate
- Ferric Phosphate
- Diatomaceous Earth
- Garlic
- Limonene (citrus oil)
- Hydrogen Peroxide
- Microbial Products
- Neem
- Plastic Mulch
- Potassium Bicarbonate
- Pseudomonas
- Sulfur

Weed Control

- Mulching with Fully Biodegradable Materials
- Mowing
- Livestock Grazing
- Hand Weeding and Mechanical Cultivation
- Flame, Heat, or Electrical Means
- Plastic or other Synthetic Mulches: Provided, That, they are Removed from the Field at the End of the Growing or Harvest season

No PVC

Weed Control

Best for Home Garden

Weed control by hoeing

Seeds @ OMRI

- Tomatoes
  - 205 Cultivars
- Pepper
  - 89 Cultivars
- Corn
  - 61 Cultivars
- Bean
  - 78 Cultivars
- Broccoli
  - 33 Cultivars
- Cucumber
  - 50 Cultivars
- Watermelon
  - 21 Cultivars
- Potato
  - 39 Cultivars
- Pumpkin
  - 27 Cultivars
- Squash
  - 82 cultivars

Unidentified Crawling Object

Unidentified Crawling Object

Is an invader from Germany and is indeed a beetle belonging to the family Volkswagonidae.

This biotype A was once numerous but was basically eradicated by other foreign pests such as Toyotus and Hondasippius.

Last known large remnant populations were in Mexico but are dying out. Biotype B is occasionally seen.

www.lane-ag.org