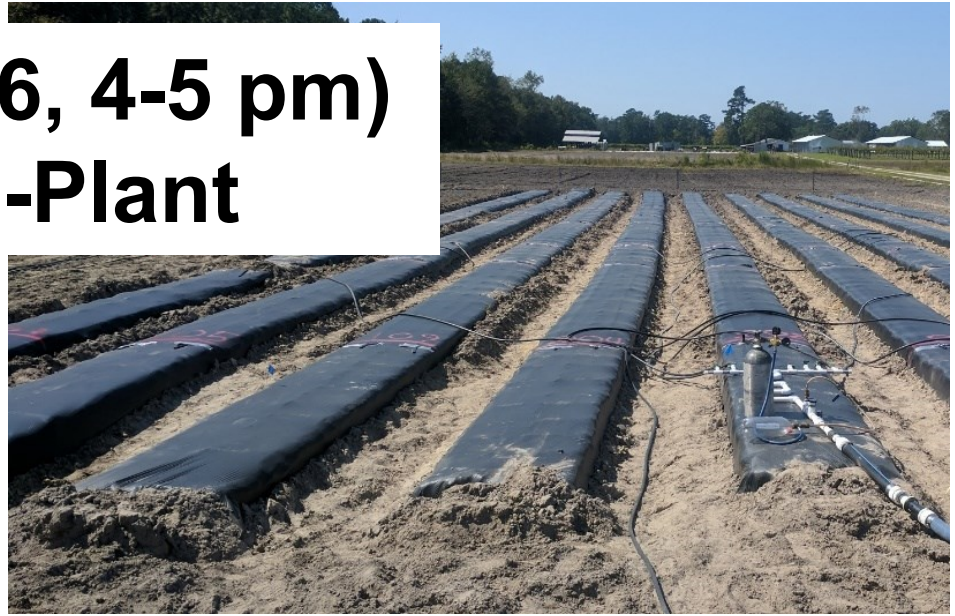
Webinar (August 26, 4-5 pm)
Strawberry Pre-Plant



Organization:
Colby Griffin, Franklin Co.
Erin Eure, Areawide Specialized Agent
Mathew Stevens, Nash Co.

Host:
Mark Hoffmann, NCSU

Panelists:
Gina Fernandez, Strawberry Breeder, NC State
Hannah Burrack, Strawberry Entomologist, NC State
Bill Cline, Strawberry Plant Pathologist, NC State
Katie Jennings, Weed Scientist, NC State
Mark Hoffmann, Small Fruits Extension Specialist, NC State

Agenda

- 4:05-4:15: Strawberry Breeding in NC. *Gina Fernandez, NCSU*
- 4:15-4:25: Insects and Pollination. *Hannah Burrack, NCSU*
- 4:25-4:35: Disease control. *Bill Cline, NCSU*
- 4:35-4:45: Weed control. *Katie Jennings, NCSU*
- 4:45-5:00: Pre-plant Preparations. *Mark Hoffmann*, NCSU
- 5:00-5:15: *Q+A*

Rules for Q+A

You are muted

- Please write your questions into the Q+A box **at any time!**
- *We try to address all questions during and after a presentation*
- Mark Hoffmann will monitor questions and will make sure that we won’t miss any.
- At the end we will have a Q+A and you will have the opportunity to talk as well, if indicated

Rules for Pesticide Credits

- Please have your pesticide license number, name and county ready
- You will have to post the license number into the chat box at the **END of the webinar.** We will give you ample time to do so.
- Matthew Stevens will record the numbers.

If you missed it

Presentation slides and webinar recording will be available in 24-48 hours at the strawberry portal

https://strawberries.ces.ncsu.edu/

Enjoy the Webinar

Strawberry Pre-Plant Considerations for annual hill plasticulture

Mark Hoffmann, NC State University

Costs

Soil Preparation and Fertilization

Fumigation and Bedding

Costs

- $5,000-$7,000 / acre Establishment costs
- $12,000-$15,000/acre Production
- Income: $20,000 - $40,000 / acre (depending on planting space, weather, row space, price/quart)
- BUT: Good Pre-Plant Management sets you up for success

Establishment Costs

Plants (plug plants): ca. $3,000 - $4,000 / acre

Labor (planting): ca. $500 - $800 / acre

Fumigant: ca. $600-$1,000/acre

Plastic: ca. $200/acre

Drip tape: ca. $150 / acre

Lime, Fertilizer, etc.: ca. $200 / acre

Layflat, Connectors, etc.: ca. $100 / acre

Fumigation Rig (deprivation, repairs): ca. $50 / acre

Labor (fumigation and plastic): $500 / acre

TOTAL: $5,300 - $7,000 / acre (does not include fencing!)

Pre-plant cycle

Site Selection

Soil Sampling and Prepartion

Pre-Plant Fertilziation

Soil Fumigation

Plastic Mulch, Rye-Grass in Row Middles

Transplanting

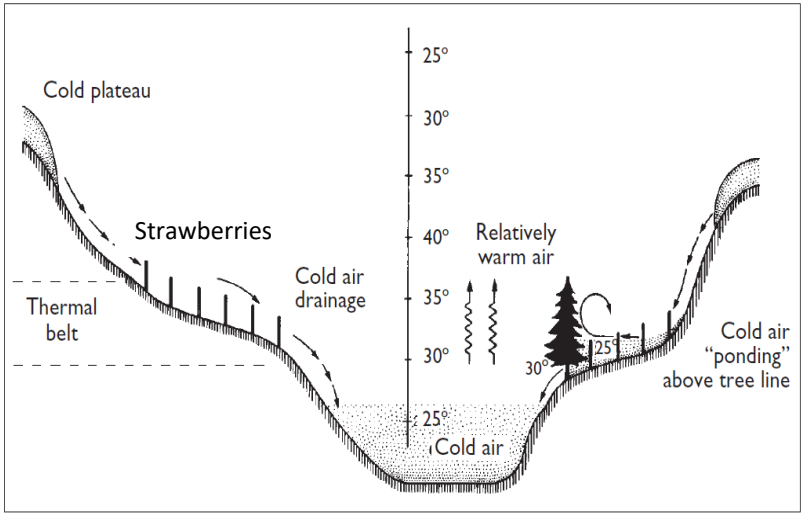
Site Selection

- Site Location: Windbreaks in north/northwest of field/ good visibility for PYO/close to water source
- Row Orientation: Important: Air Drainage (west), **Water Drainage (water needs a place to go)**. If possible, rows in North-South direction
- Slopes: South-facing: early/ North-facing: late

Site Selection

- Wildlife can be a large problem: Invest in fences. Deer love to eat small strawberry plants.

Site Selection



Problems in hilly regions:

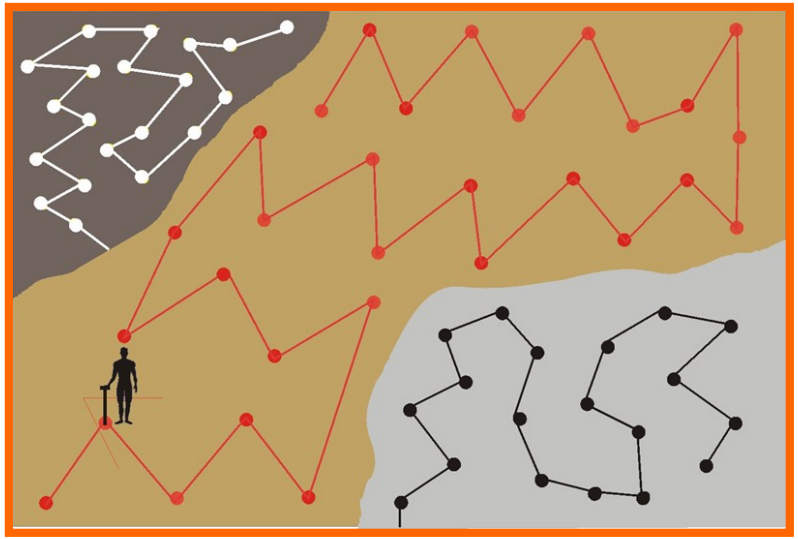
- **Airflow (see left)**
- **Erosion**
- **Irrigation (up hill vs. down hill)**
- **Washed out beds**
- **Try to find flat ground**

Soil Preparation and Fertilization

- Soil Type: sandy loam – clay loam are preferable
- Soils with high sand, clay or rock content are no preferred!
- Need to be able to form a **6-8” bed!!!**

Soil Sampling

- Sample 6 months prior to planting
- **Apply lime to target pH (6-6.5)**
- **Depth: 8 Inches**



Soil Preparation and Fertilization

- Plow 3-6 months prior (decreases residues)
- Remove debris, trash, work soil deep, remove rocks

Soil Preparation and Fertilization

- Apply fertilizer shortly before bed formation, according to soil test recommendations
- **Rule of thumb: 60 lbs/acre of N; 120 lbs/acre of P and K**
- Maybe Boron (if on sandy soils, see soil test)
- Maybe sulfur (is sulfur index is below 30)
- **Recommendations on strawberry fertility:**

https://www.ncagr.gov/agronomi/documents/StrawberryFertility-Feb2015.pdf

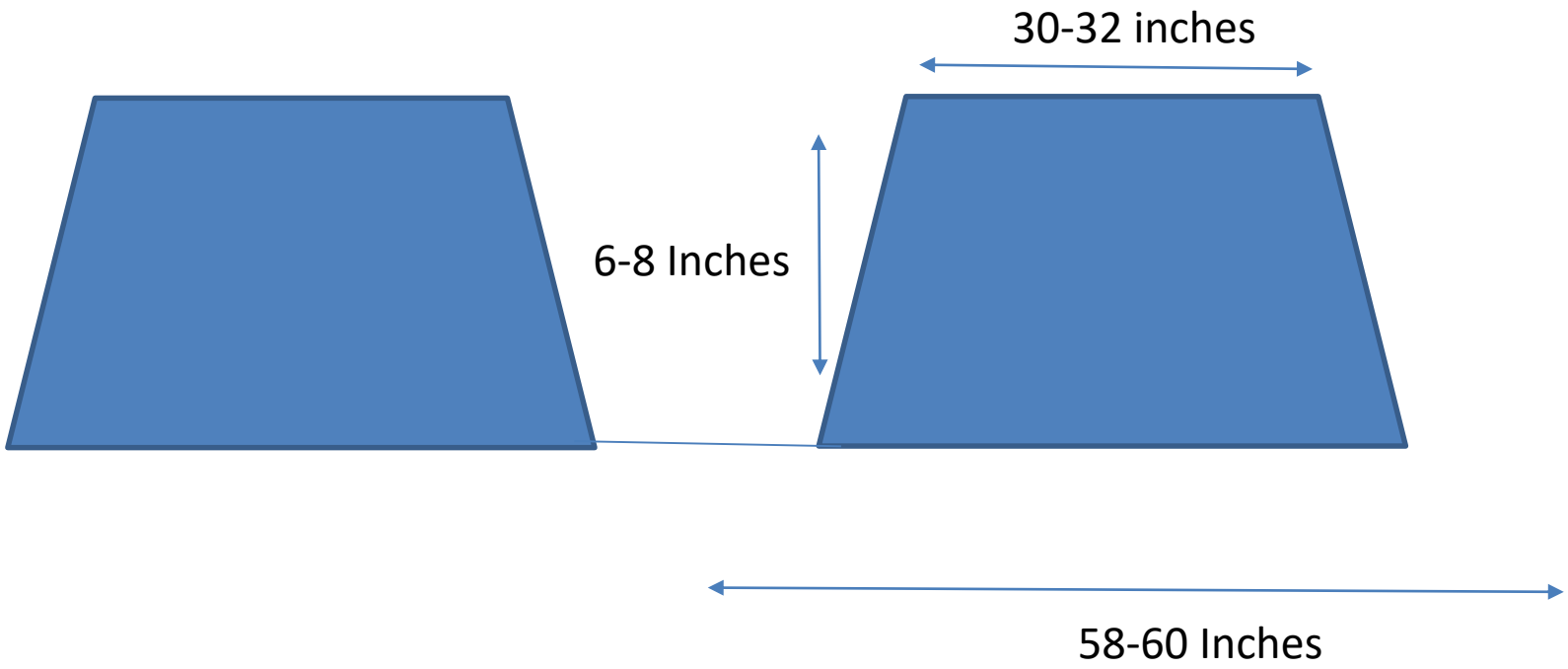
Fumigation and Bedding

Planting Space based on:
Variety, Experience and Vigor of plant

- 12 Inches = 17,500 plants/A (small cultivars, colder sites)
- **14 Inches = 15,000 plants/A**
- 15 Inches = 14,000 plants/A

Figure 9: Finished Strawberry Bed

Fumigation and Bedding



Fumigation and Bedding

- 60 Inch center: 8712 linear feet of plastic / acre
- Use a 64-66 inch plastic roll
- Make sure beds are minimum 6 inches high!! Better 8!

Fumigation and Plastic

Plastic	Costs	Control Efficacy
PE Films	Cheap	low
VIF	Costly	Low-medium
TIF	Costly	Medium-high

VIF and TIF have much better control efficacy. PE Film lets certain fumigants (1,3-D) escape very quickly, especially in sandy soils.

Fumigation and Plastic

- *Soil Temperature:* > 50F;
- *Soil Structure:* High OM (-); Too many clods (-); Sandy soils (+);
- *Soil Moisture:* usually ca. 70% of field capacity;
- *Plastic and sealing:* TIF/VIF. Plastic needs to be tight to bed
- *Application rate:* Don't safe on fumigant! E.g. Pic-Clor 60: usually min rates of 350-400 lbs/ac (applied area). (equals around 170 lbs/ac (total area))

Make Fumigation Plan!!!!

Fumigation and Plastic

- **Pic-Clor 60/80 (300-350 lbs/a, 21 days)**

Chloropicrin (60/80%) + 1,3D (40/20%)

- **Telone (30-40 gal/a, 21 days)**

Chloropicrin (17-35%) + 1,3-D (65%)

- **Paladin (14 days)**

Chloropicrin (21%) + Di-Methyl Disulfide (79%)

- **Vapam/Kpam/Sectagon and others (21 days)**

Metam Sodium/Metam Potassium

Fumigation and Plastic

Fumigant	Nematode	Disease	Nutsedge	Other weeds
Telone C 35 + VIF/TIF	+++++	+++++	+++	+++
Telone C 35	+++++	+++++	+	+
In-Line	+++++	+++++	+	+++
Metam Sodium	++	+++	++	+++++
Dominus	++	+++	++	+++
Pic-Clor 60	+++++	+++++	+	+++
Chloropicrin	+	+++++	-	-

Safety and PPE

- Fit Test!
- Medical Exam
- Make sure it forms a seal

- Store at dry and cool place (not in garage/shop)
- Clean regularly
- Change cartridge regularly

- Never use a cartridge AFTER expiration date

Thank You and Q+A

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