Row Cover for Squash Integrated Pest Management (IPM)

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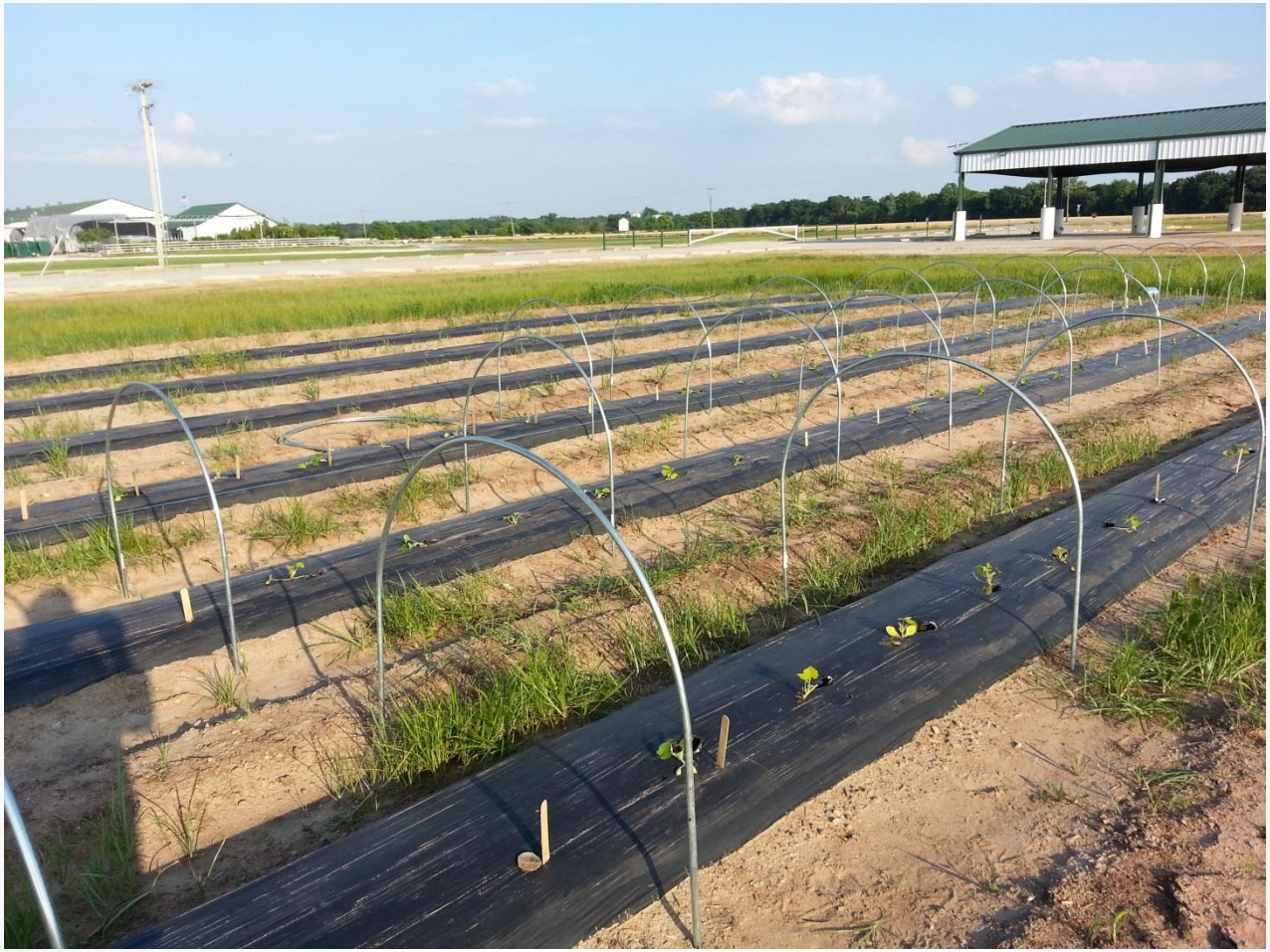
  Shawnee Milling and Feed Center
- Oklahoma Cooperative Extension Service
- Oklahoma Agricultural Experiment Station

2015 & 2016 Trial Locations

Demonstration Treatments

1. **No row covers / Treat with insecticides**
2. **Row covers / Remove covers at 50% of plants with female flowers**
3. **Row covers / Remove covers at 2 weeks after 50% of plants with female flowers**
4. **Row covers / treatment until 50% of plants have female flowers, uncover for 2 hours (8 a.m. – 10 a.m.)**
5. **Cover treatment until 50% of plants have female flowers, uncover for 5 hours (8 a.m. – 1 p.m.)**

Just before covers installed



Organisms observed

Beneficial

- Bees – honey, bumble, carpenter, metallic
- Moths and butterflies
- Parasitoid wasps
- Wheel bugs
- Assassin bugs
- Eastern firefly
- Toads
- Field mice?

Pests

- Squash bugs
- Stink bugs
- Flea Beetles
- Cucumber beetle
- Cabbage moth larva
- Southern Corn Billbug

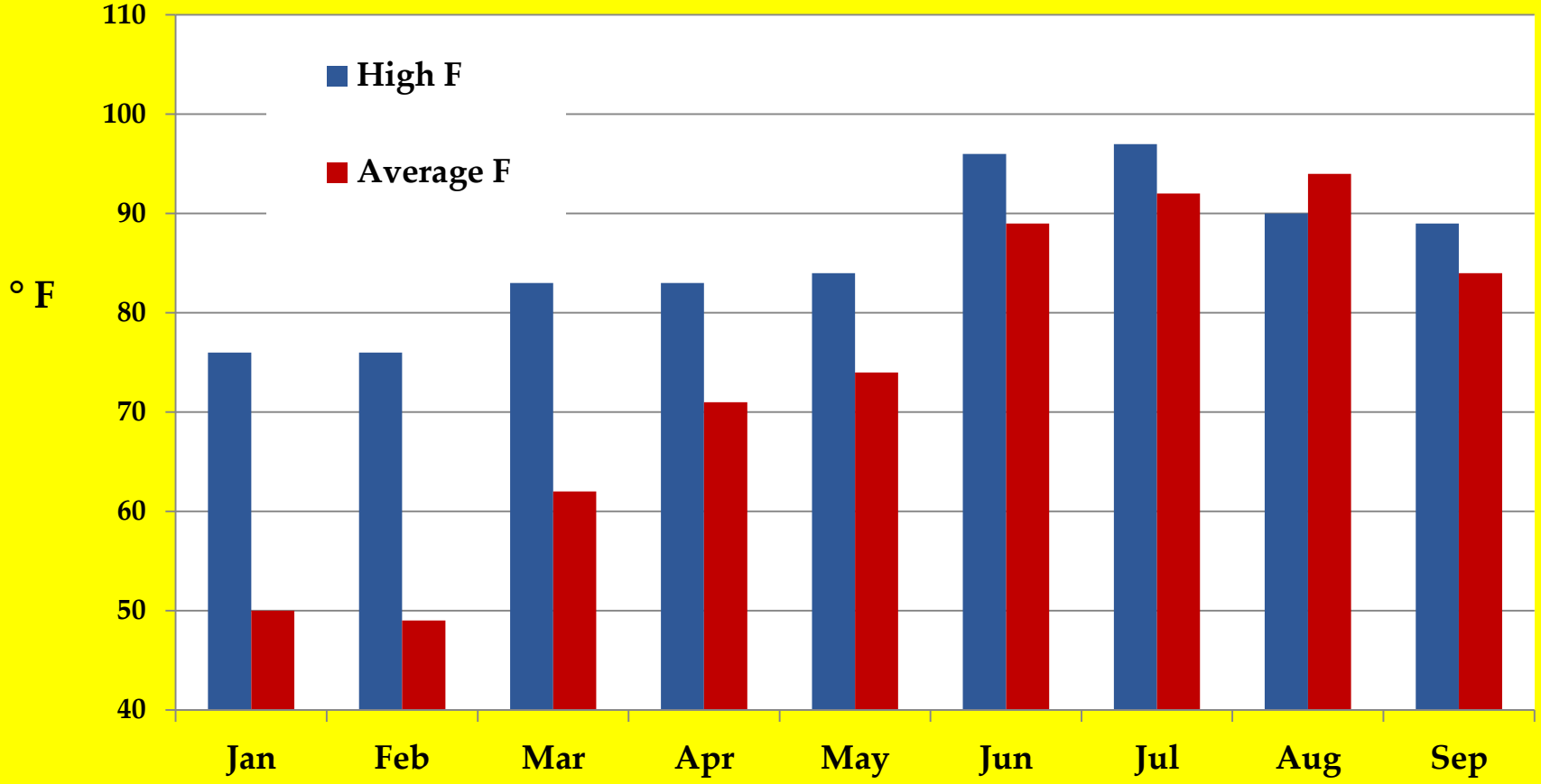
Atoka Site Details

- Enterprise Yellow Squash seed planted June 25.
- Row covers installed after emergence, July 9
- Uncovered treatments 2, 4, 5 starting on Aug 3
- Uncovered treatment 3 on August 17.

Shawnee site details

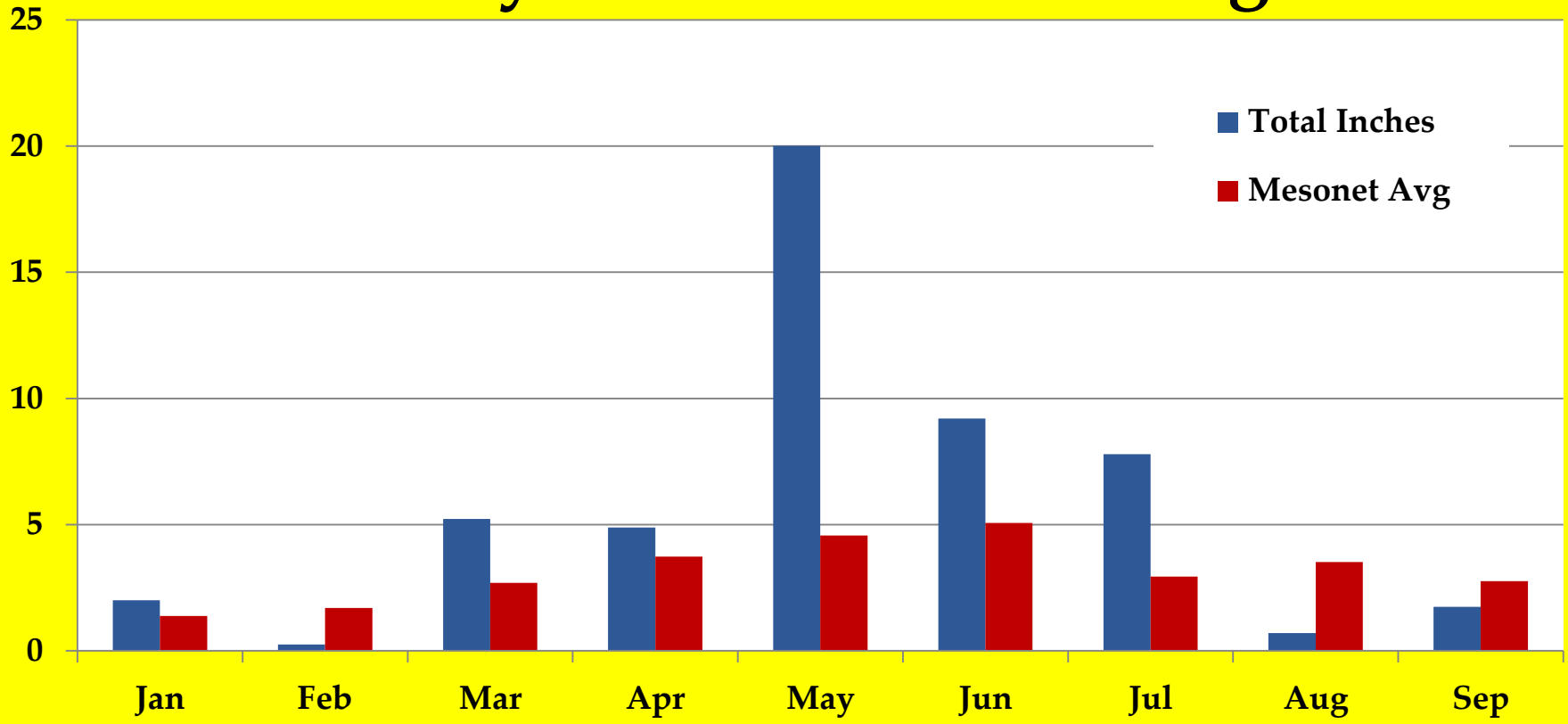
- Raised beds with plastic prepared on April 11
- 4.15 inches of rain from April 11 till May 1.
- 11.3 inches from May 1 till May 18.
- Seedlings planted on May 18.
- 8.72 inches of rain from May 19 to June 1 (May 23 – 5.5 “)
- Replacement seeding on June 2
- 9.11 inches of rain in June (6/12 – 618)
- Covered Treatments 2 to 5 on June 4
- Uncovered Treatment 2 on July 27 (Trt 3 remained covered for 2 weeks and Trts 4 and 5 uncovered daily for 2 and 5 hours, respectively until Aug 20).
- Uncovered Treatment 3 on August 9
- Uncovered Treatments 4 and 5 on August 20
- Pyrethrum applied to Trt 1 – June 28 and August 12 and 21
- Sulfur applied to all to control PM– June 28 and August 21.

Shawnee Mesonet - Avg. High Temp vs. 10 Yr.



2015

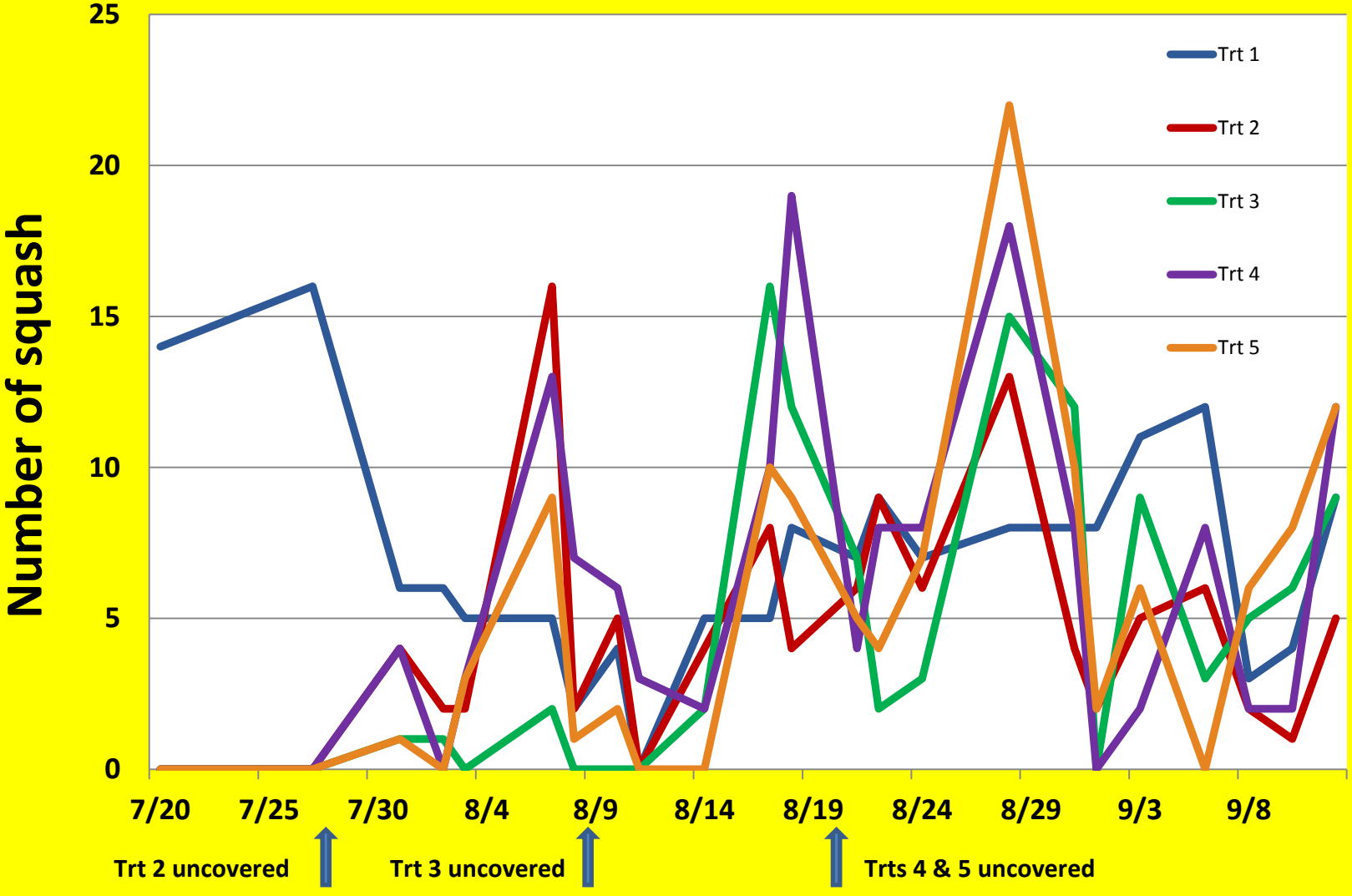
Shawnee Mesonet – Precipitation, Monthly Total vs. 10 Year Avg



2015

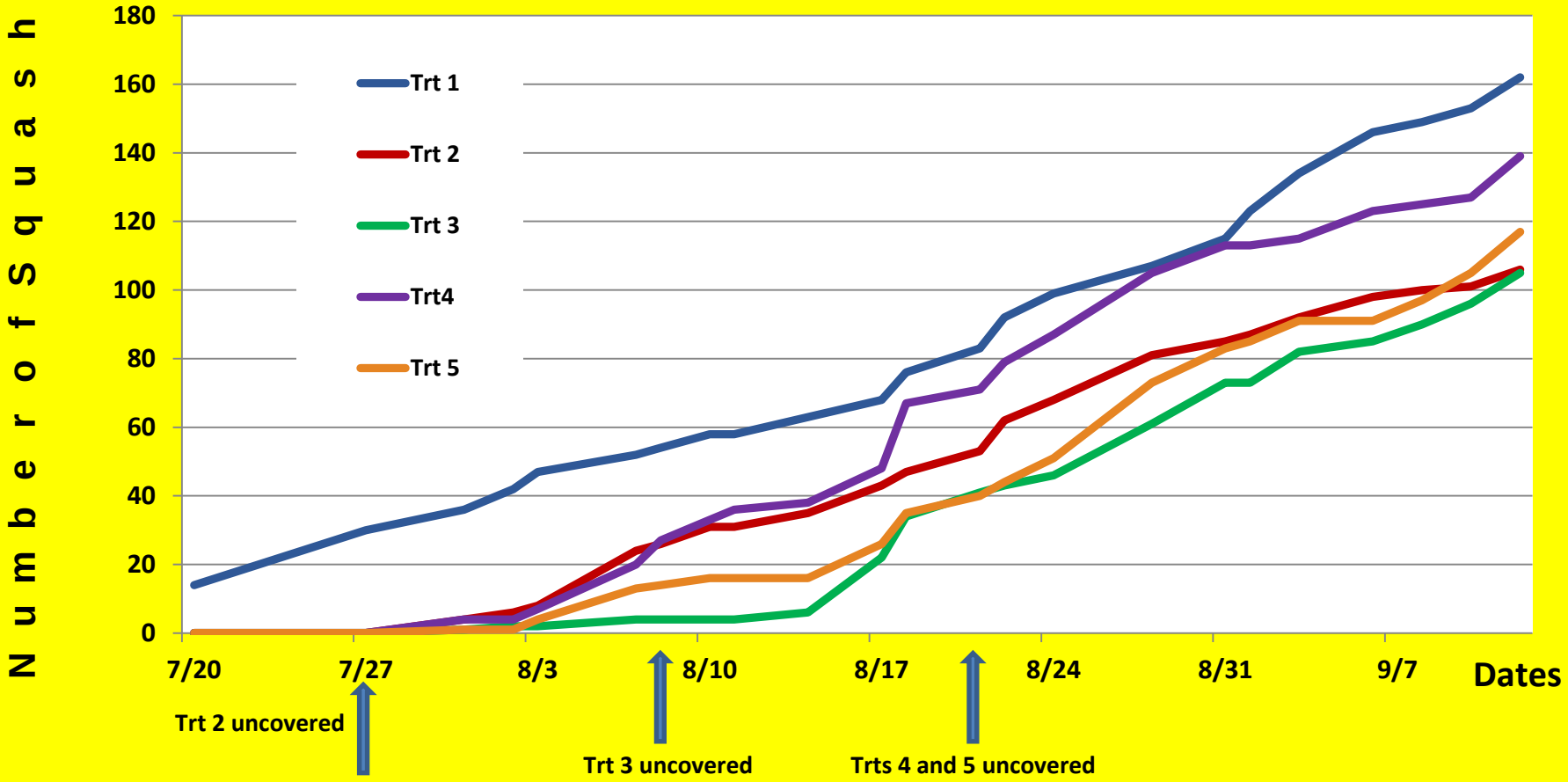
Shawnee, OK

Daily Squash Harvest by Treatment

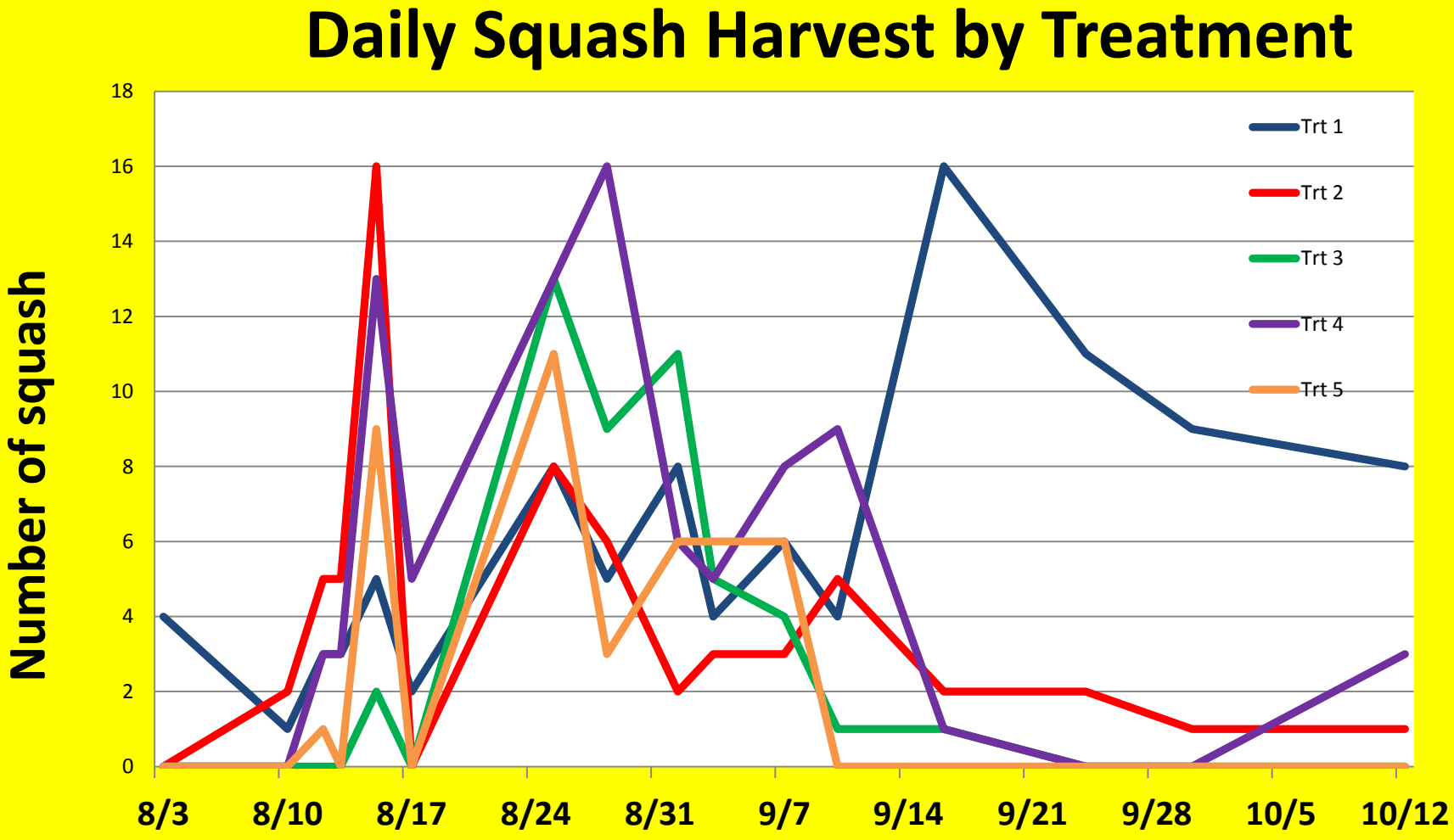


Shawnee, OK

Cumulative Squash Harvest Totals by Treatment

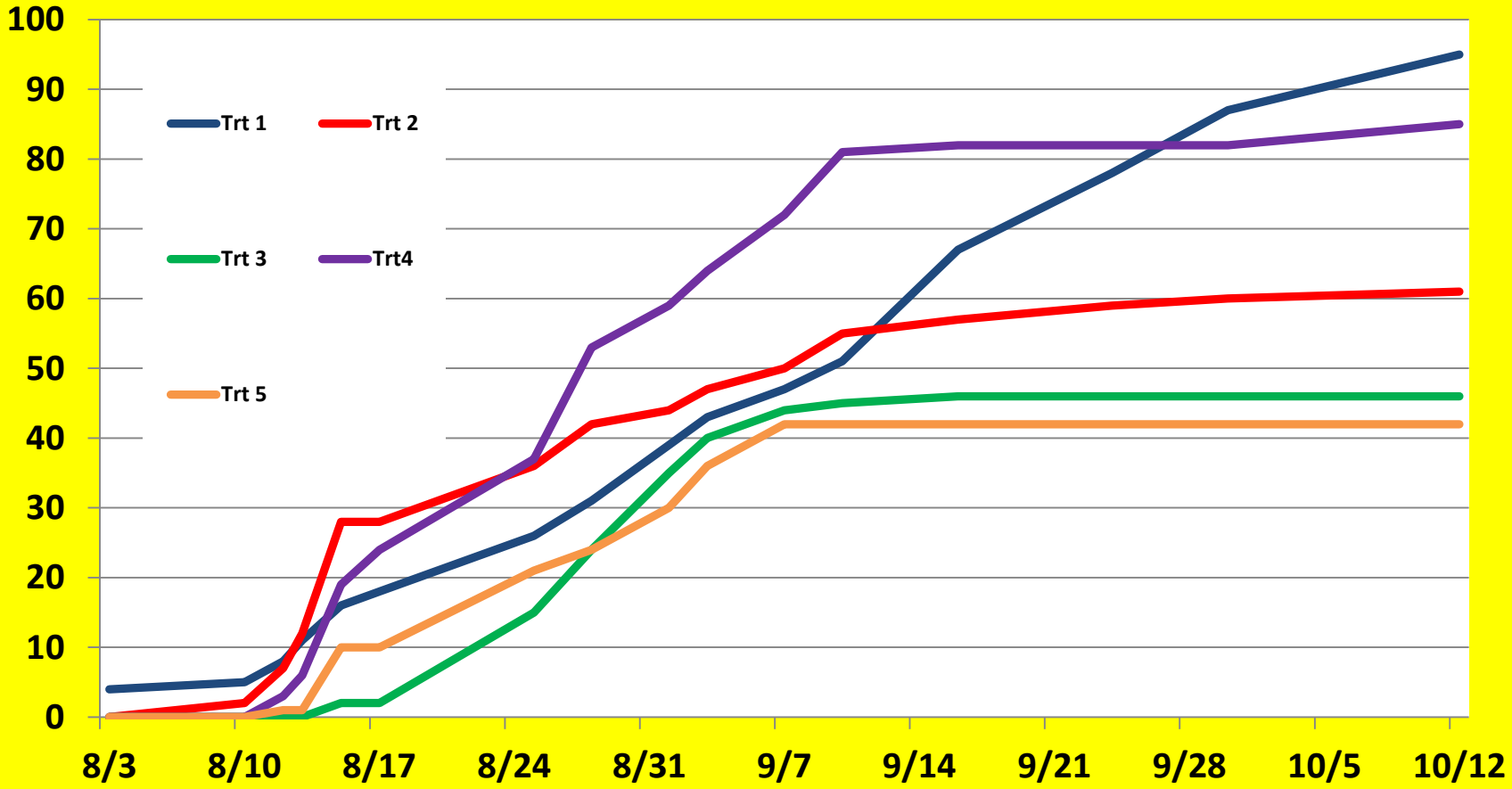


Atoka, OK


Daily Squash Harvest by Treatment
Number of squash
18
16
14
12
10
8
6
4
2
0
8/3
8/10
8/17
8/24
8/31
9/7
9/14
9/21
9/28
10/5
10/12
Trt 1
Trt 2
Trt 3
Trt 4
Trt 5

Atoka, OK

Cumulative Squash Harvest Totals by Treatment



Monthly Totals of Squash by Trt Shawnee Site

Trt	July	August	Sept	Ttl
1	36	79	47	162
2	4	81	21	106
3	1	72	32	105
4	4	109	26	139
5	1	82	34	117
				629

Monthly Totals of Squash by Trt Atoka Site

Tr t	August	Sept	Oct	Ttl
1	31	58	8	97
2	29	18	1	48
3	22	22	0	44
4	26	29	3	58
5	16	18	0	34
				281

Summary for Year One

Positive

- Row covers may reduce the need of insecticides.
- Row covers protect squash from hail and high winds.
- Row covers may extend squash harvest into the late summer.

Negative

- Row covers appear to delay early harvest.
- Row covers increase difficulty in controlling weeds.
- Row covers are difficult to keep in place in high winds.
- Row covers are an extra cost.