# Effect of Protek net on cucurbit crop growth and microclimate management

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# Project Objectives


1. Document impact of protek net material
2. Reduce the occurrence of heat-related stress
3. Provide growers with research-based information

# APPROACH

**Cover treatment**

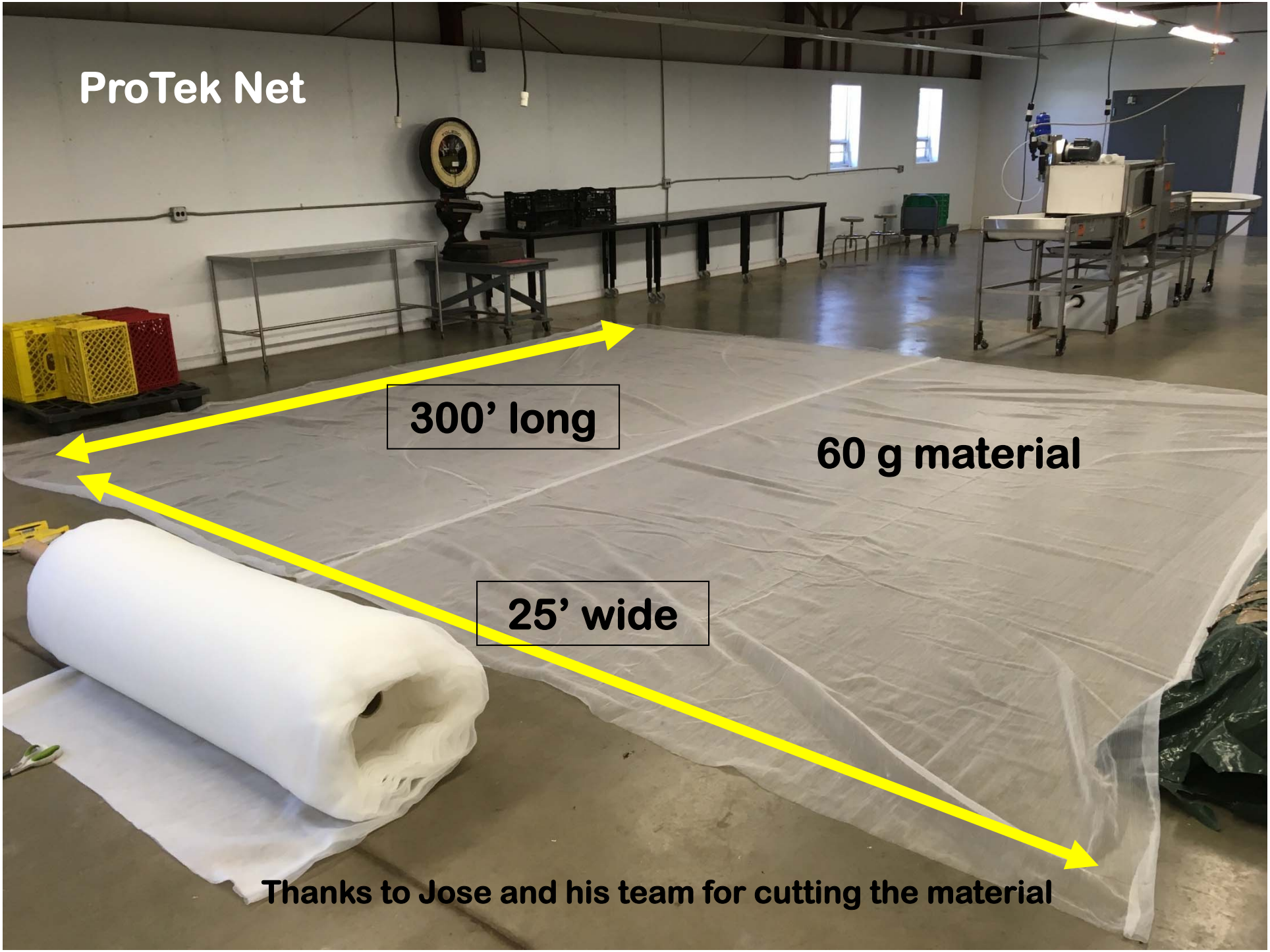
- No-cover
- ProTek Net

**Crops**

- Acorn squash
- Butternut squash
- Watermelon

**Sites**

- Cedar Rapids, IA
- Granger, IA
- Grinnell, IA


ProTek Net
300’ long
60 g material
25’ wide
Thanks to Jose and his team for cutting the material

# Planting at Rodale Institute 6-18-2020

Transplants dipped in kaolin clay solution


Acorn squash ‘Table Ace’


Weed fabric


Planting at Middle Way Farms, Grinnell 7-6-2020
Watermelon


Weed management using straw mulch


Planting at Wabi Sabi Farms, Grinnell 7-21-2020
Butternut squash ‘Butterscotch’

## Average air temperature °F

| Cover | June | July |
|---|---|---|
| No-cover | 79.6 | 83.1 |
| Protek net | 80.5 | 82.3 |

## Average light intensity (lux)

| Cover | June | July |
|---|---|---|
| No-cover | 41,020 | 32,542 |
| Protek net | 31,033 | 24,409 |

**25%**

# Harvest at Rodale Institute 8-28-2020

# Acorn squash yield (Rodale)

**Plots were 30 ft long, replicated three times**

| Cover | Marketable | |
|---|---|---|
| | Number | Weight (kg) |
| No-cover | $28^{NS}$ | $20.7^{NS}$ |
| Proteknet | 42 | 29.3 |

| Cover | Insect damage | | Sunscald | |
|---|---|---|---|---|
| | Number | Weight (kg) | Number | Weight (kg) |
| No-cover | 9 a | 6.2 a | 13 | 8.6 |
| Proteknet | 4 b | 2.3 b | 18 | 11.5 |

# Watermelon yield (Middle Way Farm)

**Plots were 40 ft long, replicated three times**

| Cover | Marketable | |
|---|---|---|
| | Number | Weight (lb) |
| No-cover | $21^{NS}$ | $93.2^{NS}$ |
| Proteknet | 23 | 99.4 |

| Cover | Insect damage | |
|---|---|---|
| | Number | Weight (kg) |
| No-cover | $6^{NS}$ | $20.4^{NS}$ |
| Proteknet | 6 | 20.5 |

# Butternut squash yield (Wabi Sabi Farm)

**Plots were 120 ft long with two replications**

| Cover | Marketable | |
|---|---|---|
| | Number | Weight (lb) |
| No-cover | 154 b | 157.9$^{NS}$ |
| Proteknet | 196 a | 208.1 |

| Cover | Insect damage | |
|---|---|---|
| | Number | Weight (kg) |
| No-cover | 25$^{NS}$ | 15.2$^{NS}$ |
| Proteknet | 30 | 20.2 |


On-farm trial
Titus Bontrager,
Kalona, IA
April 26, 2018


Broccoli


Aphids; finer type of Protek net should be used for aphids

# Contact

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SUSTAINABLE VEGETABLE PRODUCTION

http://extension.iastate.edu/vegetablelab

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LEOPOLD CENTER
FOR SUSTAINABLE AGRICULTURE