

hemp contracts & tips for floral hemp

Dr. Sanjun Gu
Extension at A&T



N.C. A&T
HEMP CONFERENCE



Hemp Contract



Marne Coit
Agricultural Law Lecturer
Agricultural & Resource Economics
macoit@ncsu.edu

“Although hemp is still a relatively new crop in North Carolina, contracts for hemp are similar to contracts for other products. Parties should conduct business with other reputable parties and conduct their own due diligence before entering into an agreement. Parties should consider consulting an attorney licensed in North Carolina to review agreements before signing.”

<https://content.ces.ncsu.edu/industrial-hemp-in-north-carolina-guide-to-understanding-and-evaluating-contracts>



Good to Go

- ✓ Delivery point and price are **clear and timely**
- ✓ Buyer places a portion of funds in escrow to cover the purchase
- ✓ Purchase price for flower is based on **delivered weight and percent CBD**
- ✓ Required testing, sampling protocol, and acceptable limitations are clearly described
- ✓ A third-party testing facility is mutually agreed upon between producer and buyer
- ✓ Buyer is providing plant material in the form of seeds or transplants
- ✓ Buyer is registered with the Secretary of State



Proceed with Caution

- ? Post-delivery location of product is unclear
- ? Payment will be made all or in-part with product instead of cash
- ? Purchase price for CBD is based on delivered weight only
- ? Non-compete clause preventing selling to another buyer for a period of time after the contract has been filled
- ? Exclusivity: Restriction for contracting with any other buyer for the current year or multiple years
- ? Buyer completely dictates the variety to be grown
- ? Purchase price for floral bud is based on acreage only



Steer Clear

- × Company contact information is not disclosed in the contract
- × No specific purchase information is included
- × Payment will be delayed until final product is marketed
- × Assigning grower license to buyer
- × Non-disclosure provision about disputes or contract terms



Hemp for Floral Buds (CBD)

- Do not grow hemp without a (good) contract!
- Fully understand the basics of hemp plants: dioecious, short day species, have pests, sucker
- Choose good cultivars from reliable sources
 - > Low THC, high CBD, high biomass (buds)
 - > Avoid male plants: careful with feminized seeds
 - > Use good quality clones: avoid root bound
- Identify the ideal transplanting date(s)
 - > Use transplants/clones
 - > June to August
 - > Adjust spacing based on planting dates
- Loam soil with good OM: 100-120 lb N/acre
 - > Use raised beds
 - > Avoid plastic mulch if not well drained
- Treat hemp as a horticulture crop (tomato?)
 - > Training/Staking/Pruning
- Remove any male plants
 - > Know what your neighbor's hemp
- Be ready for pests: pesticides limited
- Timely testing for THC
 - > Watch plants for female flower/ Ask for a retest if hot
- Timely harvest
 - > Get you labor ready
- Proper drying facility
 - > Use buds, not leaves and stems
- Proper storage facility
 - > Air-tight bags, cool and dry place, away from direct sunlight



*Plastic mulch suppress weeds but cause problems
in poor drainage field.*



Pest Control

Insects, mites, diseases, weeds

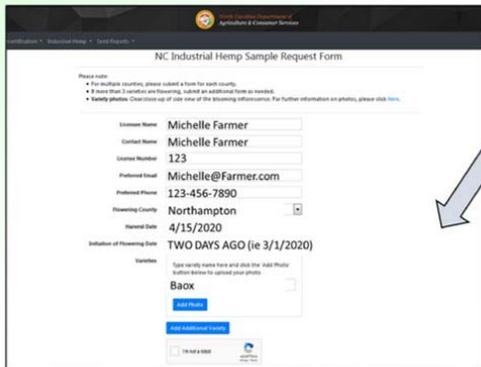
- Minimum risk pesticides (25b pesticides)
- 10 pesticides approved By EPA (12/19) for use on hemp
 - > 9 biopesticides
 - > 1 conventional pesticides

<https://www.epa.gov/pesticide-registration/pesticide-products-registered-use-hemp>



NC Industrial Hemp Pilot Program Request THC Testing

<https://apps.ncagr.gov/agrsysportal/industrialhemp/samplerrequest> or google "NCDA Hemp Sample Request"



NC Industrial Hemp Sample Request Form

Please note:
 • For multiple counties, please submit a form for each county.
 • If more than 3 varieties are flowering, submit an additional form as needed.
 • Variety photos: Clear close-up of side view of the blooming inflorescence. For further information on photos, please click [here](#).

Licensee Name: Michelle Farmer
 Contact Name: Michelle Farmer
 License Number: 123
 Preferred Email: Michelle@Farmer.com
 Preferred Phone: 123-456-7890
 Flowering County: Northampton
 Harvest Date: 4/15/2020
 Initiation of Flowering Date: TWO DAYS AGO (ie 3/1/2020)
 Varieties: Back

[Add Photo](#)
[Add Additional Variety](#)

**WHEN TO REQUEST SAMPLE
At flower initiation**

YOU WILL BE CONTACTED BY

- Hemp Sampling Coordinator within ~1 week, and
- Hemp Inspector within ~2 weeks of your request



Industrial Hemp Sample Request for Michelle Farmer 3/3/2020

noreply@ncagr.gov
 To: Michelle Farmer

**** PLEASE DO NOT REPLY TO THIS EMAIL. It was sent from an unattended mailbox. ****

A new industrial hemp sample request was submitted with the following information:
 Licensee Name: Michelle Farmer
 Contact Name: Michelle Farmer
 License Number: 123
 Email: Michelle@Farmer.com
 Phone: 123-456-7890
 Flowering County: NORTHAMPTON
 Harvest Date: 4/15/2020
 Initiation Of Flowering Date: 2 days ago (ie 3/1/2020)
 Varieties:
 Back:

**YOU WILL RECEIVE
An email confirmation
immediately after your
request is submitted**

**If you do not get an email confirmation or hear from the
Hemp Coordinator or Inspector within a week, send an
email to IndustrialHempRequests@NCagr.gov**

NC Industrial Hemp Sample Request Form

Please note:

- For multiple counties, please submit a form for each county.
- If more than 3 varieties are flowering, submit an additional form as needed.
- **Variety photos:** Clear/close-up of side view of the blooming inflorescence. For further information on photos, please click [here](#).
- For the crop address please give a street address closest to the location of the hemp crop that needs sampled or the first location that your specialist will need to meet you.
- If your location is difficult to find please use the **Special Instructions** section to help guide your inspector or any other comments you feel may assist your sample.

Licensee Name

Contact Name

License Number

Preferred Email

Preferred Phone

Flowering County

Crop Address

Harvest Date

Initiation of Flowering Date

Special Instructions

Varieties

Type variety name here and click the 'Add Photo' button below to upload your photo

[Add Photo](#)

[Add Additional Variety](#)

I'm not a robot 





How to Take Photos for a Sample Request

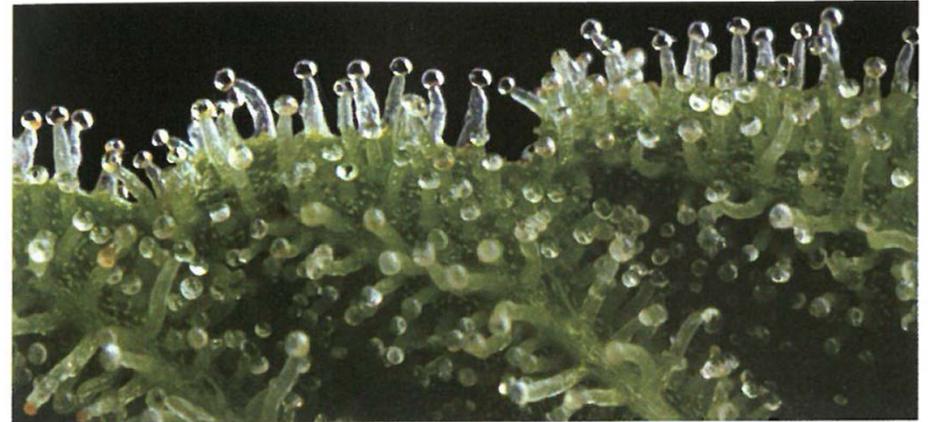


<https://apps.ncagr.gov/AgRSysPortal/industrialhemp/SampleRequestPhoto>

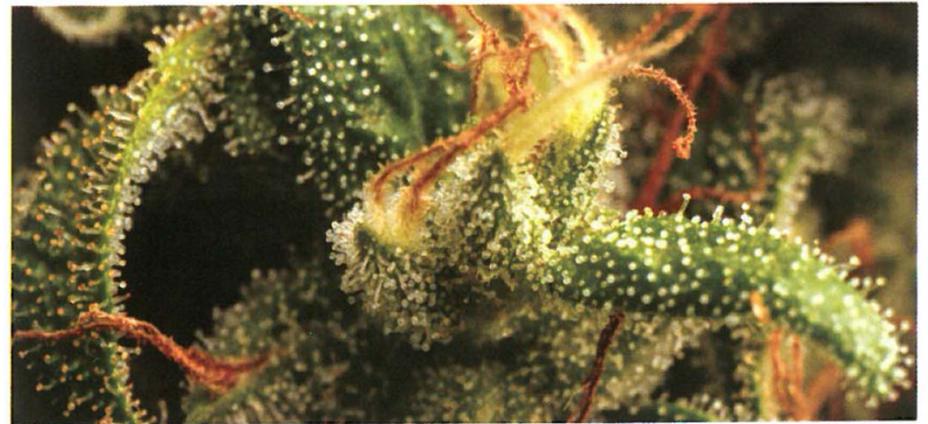
Harvest considerations

*Timing is critical for high level of CBD...
you finally get here...*

- Timing
 - » 55 to 70 days after flowering (Sept to October):
check with your clone provider
 - » When majority of trichomes are milky to slightly amber in color;
 - » When stigma turned orange
- Methods: manually, plants are tough
 - » A saw or machete will do
- Harvest buds for small scale; whole plant for large scale
- Plan well: labor and facility
 - » Let your sheriff know when transfer!



Sea of resin glands with only slight darkening indicating harvest should not happen yet.



Stigma have turned orange and the trichomes look very full of cannabinoids.

THANK YOU!



A close-up photograph of hemp buds, showing green, fuzzy structures and brown, fibrous roots. The buds are growing in a dark, moist environment, likely soil or plastic mulch. The image is set against a dark blue background.

high tunnel vs. open field bare Soil vs plastic mulch for floral hemp buds

Sanjun Gu, Becca Wait, Guochen Yang and Valerie Giddings

Objectives

- High tunnel versus open field environment
- Plastic mulch versus bare soil
 - ✓ Both in a high tunnel and open field environment



This project is funded by the Golden LEAF Foundation!



- ✓ Planted in the 1st week of June
- ✓ Cultivars: Spectrum, Otto 2 and Otto x Spectrum
- ✓ Beds spaced 5' apart
- ✓ Plants spaced 4.5' apart in rows

Plugs: Carolina Canna. Madison, NC

Plug Source





Early June (just transplanted)



Mid-June



Mid-July



Mid-August

CBD Hemp in High Tunnel



Early June



Mid-June

CBD Hemp in Open Field



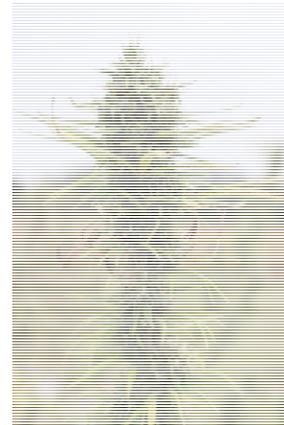
Mid-July



Mid-August



Early October



Otto2



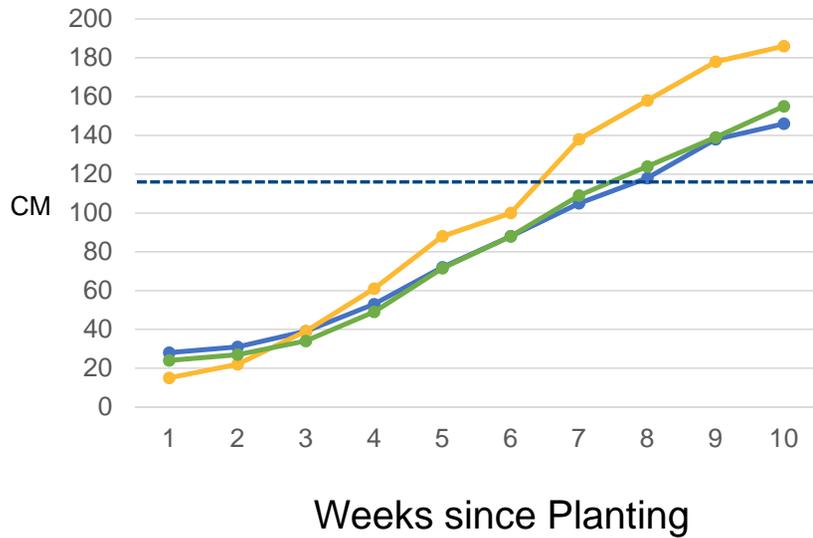
O x S



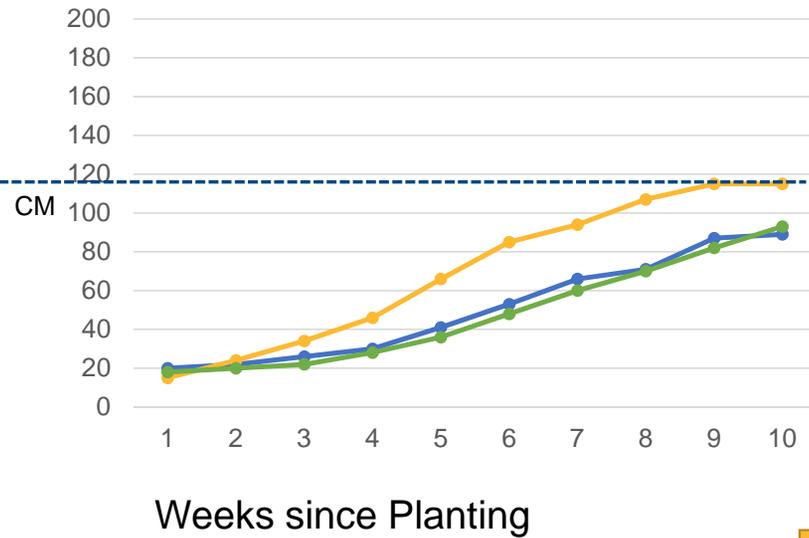
Spectrum

Average Plant Growth: field vs high tunnel

Plant Height in High Tunnel



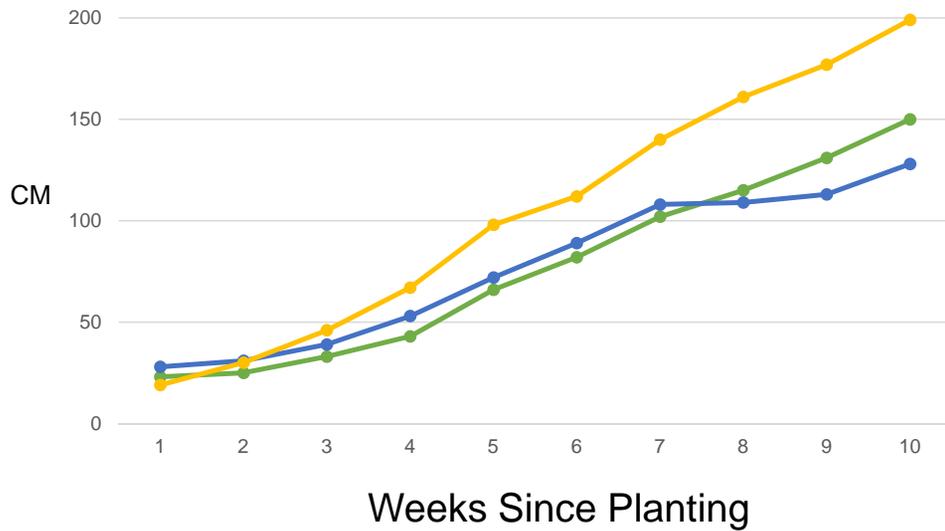
Plant Height in Open Field



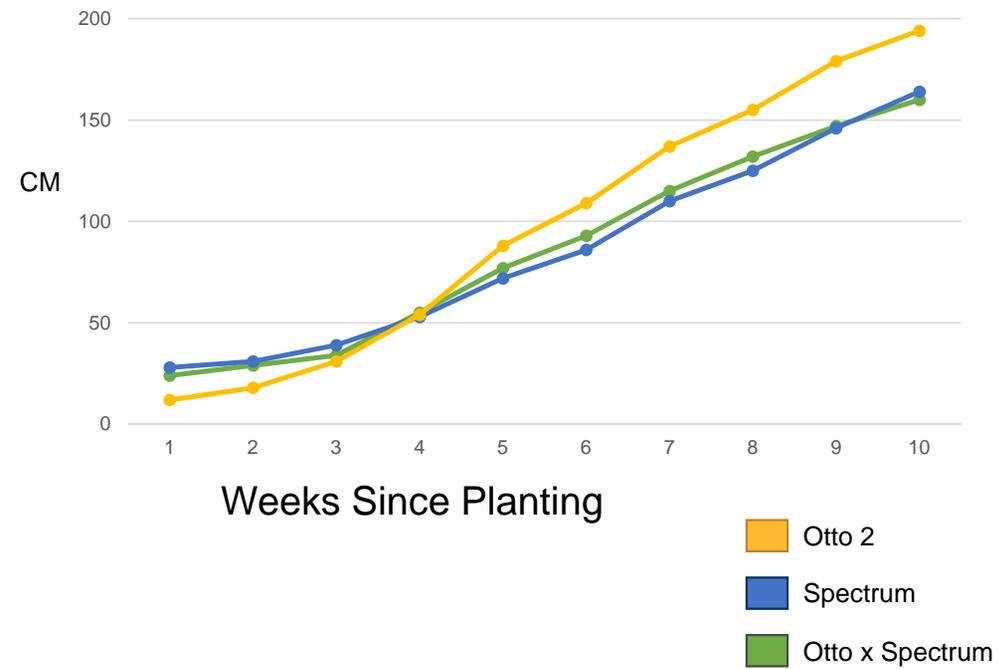
- Otto 2
- Spectrum
- Otto x Spectrum

Plastic vs. Bare Soil Beds in High Tunnel

Plant Height on **Plastic Beds**

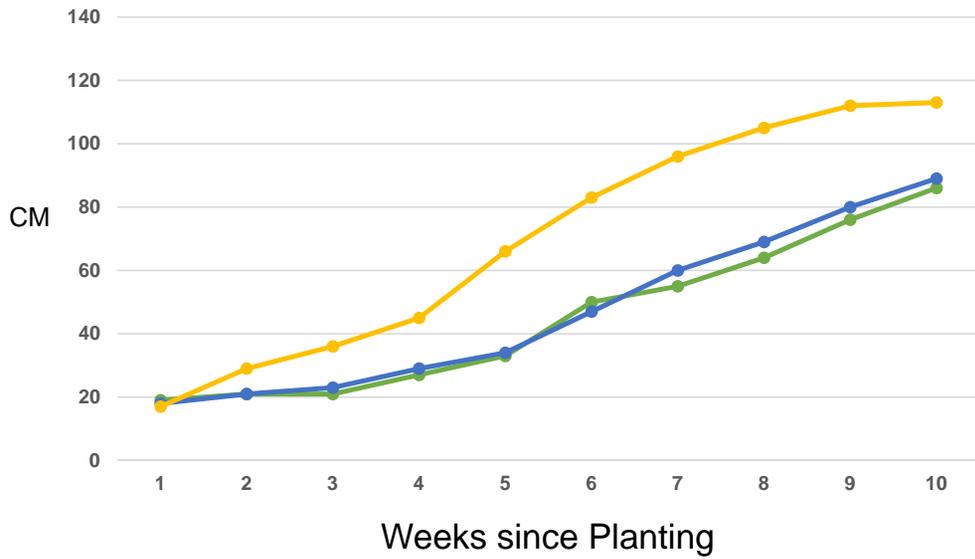


Plant Height on **Bare Soil Beds**

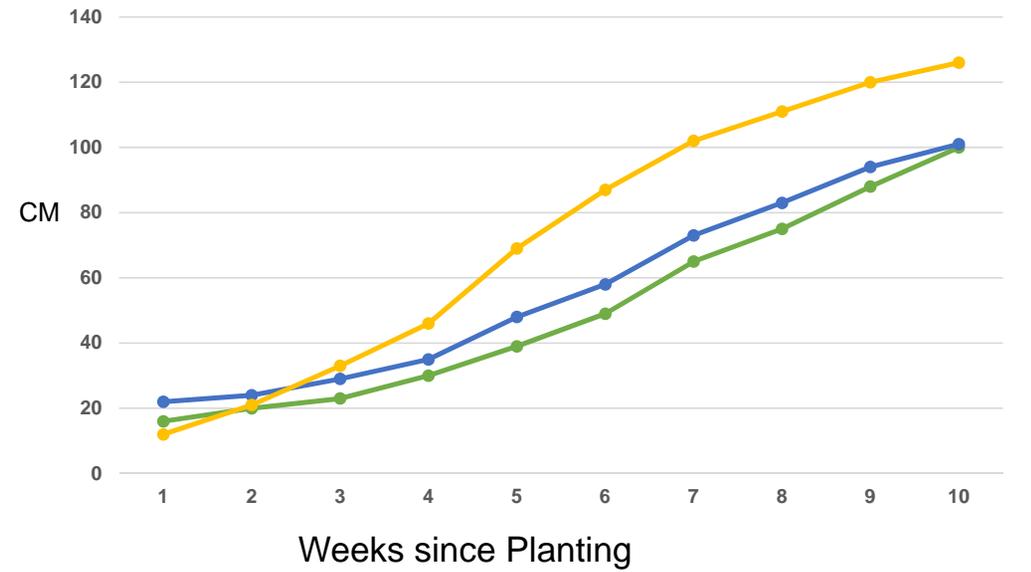


Plastic vs. Bare Soil Beds in Open Field

Plant Height on **Plastic Mulch Beds**



Plant Height on **Bare Soil Beds**

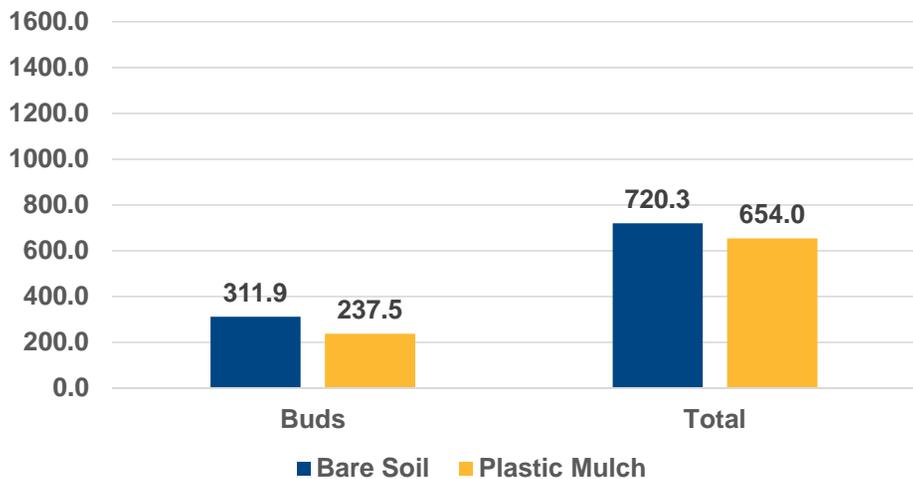


- Otto 2
- Spectrum
- Otto x Spectrum

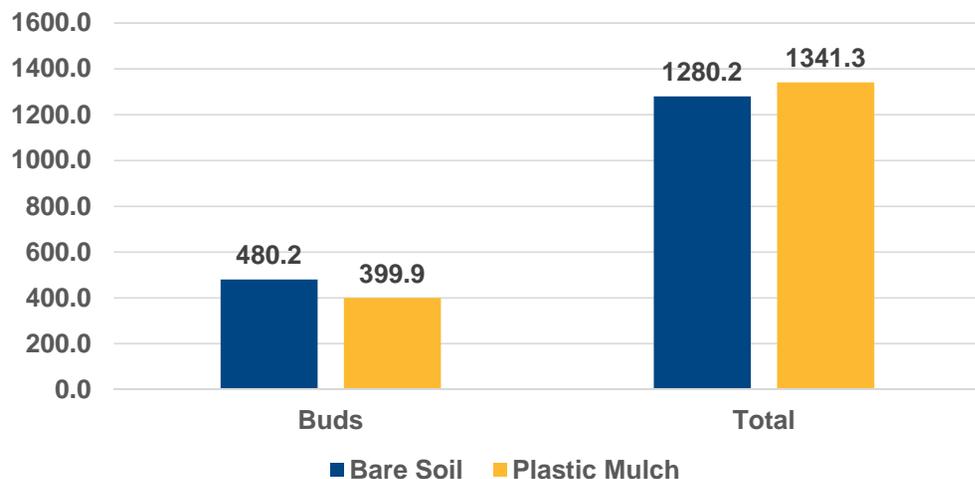


Dry Weight: Bare Soil vs Plastic Mulch

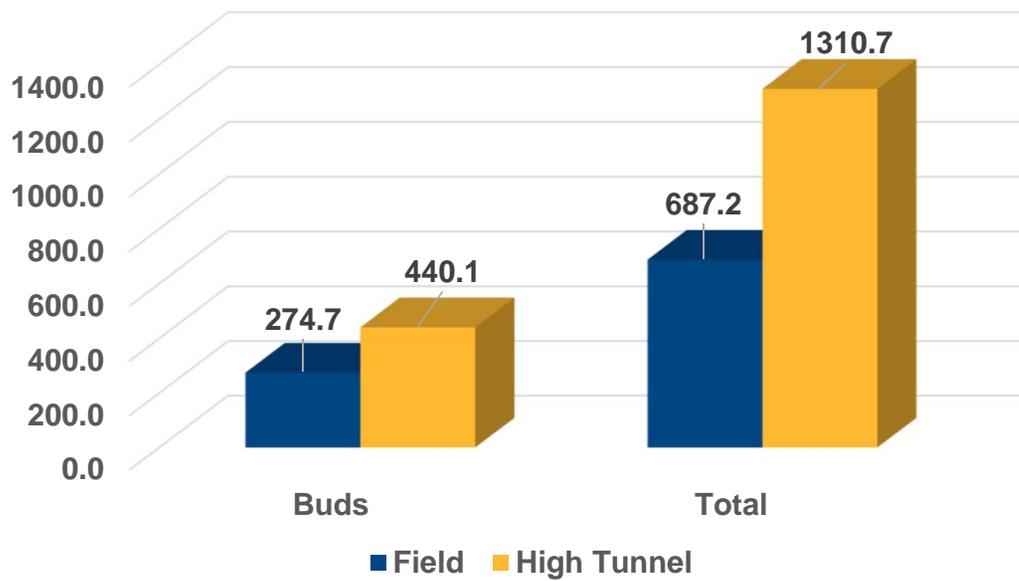
Plastic Mulch vs Bare Soil in **Field**
Dry Weight (gram)



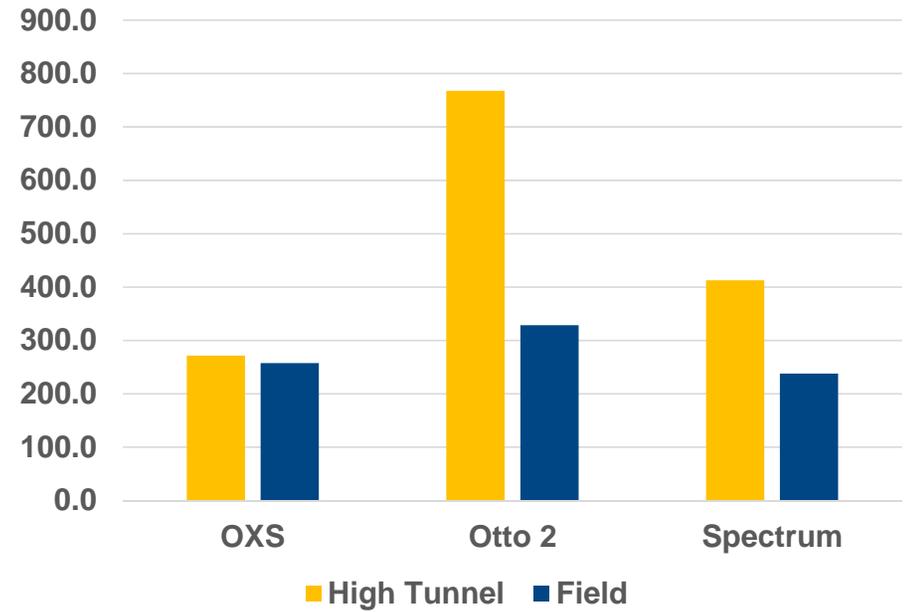
Plastic Mulch vs Bare Soil in **High Tunnel**
Dry Weight (gram)



Dry Weight: Field vs High Tunnel

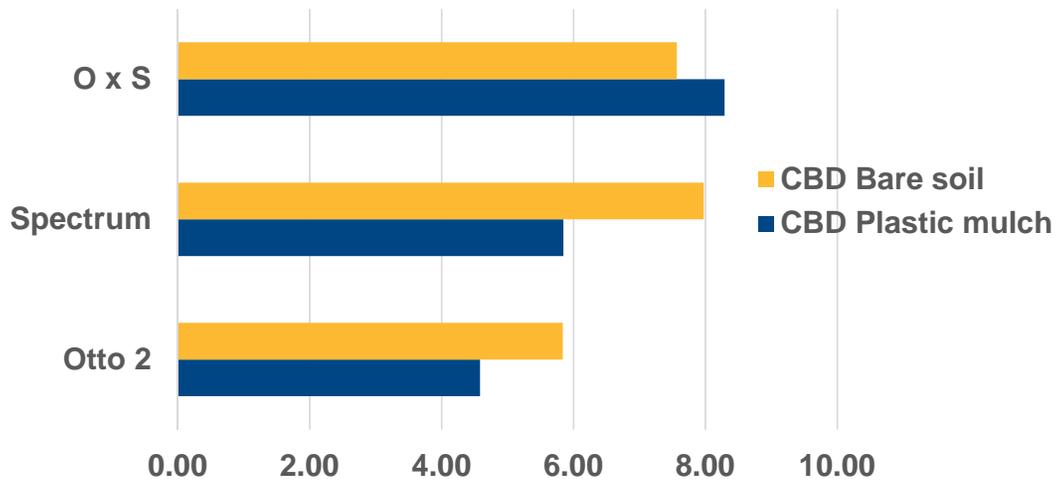


Dry Weight (Buds): Cultivars

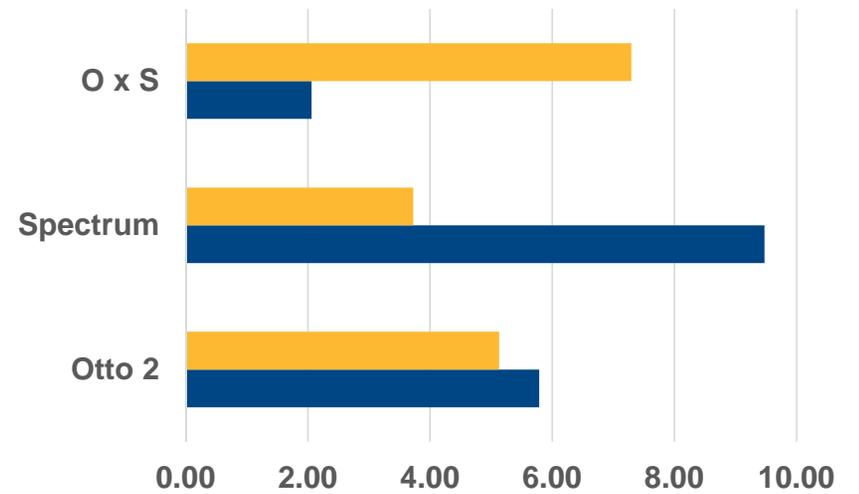


CBD (% Dry Weight)

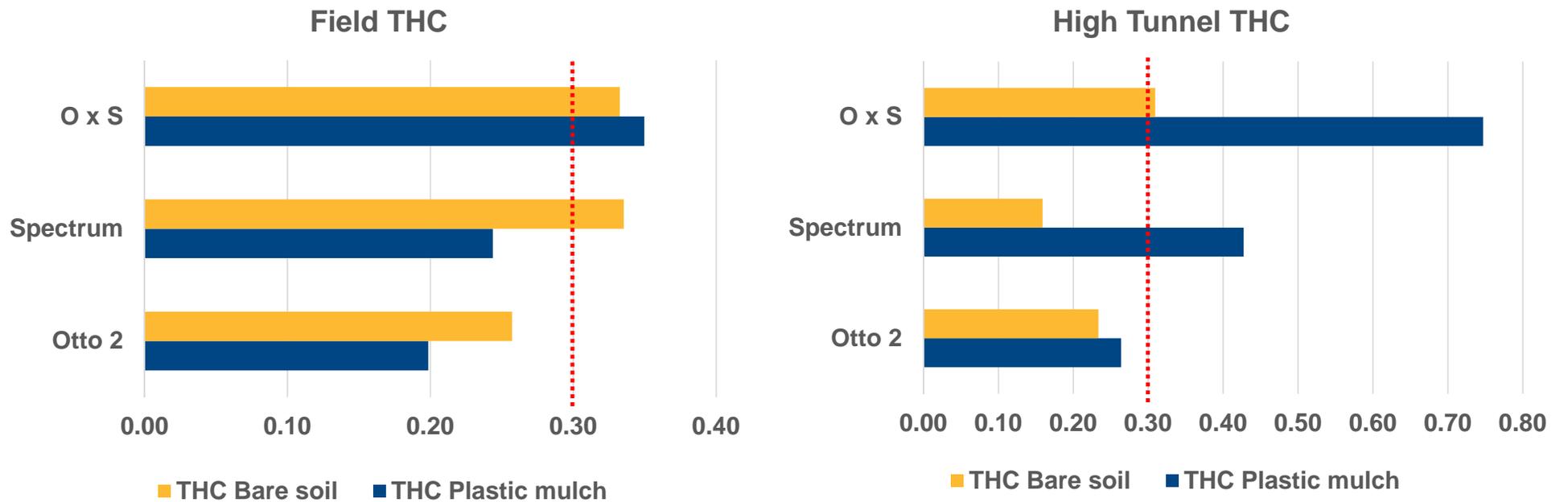
Open Field CBD



High Tunnel CBD



Total THC (% dry weight)



Preliminary conclusions

- Otto 2 appears to be the most vigorous and resilient cultivar (High Biomass)
- Plants in the high tunnel are significantly larger than plants in the open field
- There does not appear to be an advantage to using plastic mulch
- THC may be high in both field and high tunnel environments



A close-up photograph of a green plant, likely a cannabis plant, showing a central inflorescence (bud) with many small, developing flowers. The leaves are serrated and green. The background is a soft, out-of-focus green.

Questions and Comments?

Sanjun Gu

Office: 336-285-4661
336-285-4954

Email: sgu@ncat.edu