

# Penn State Hemp Program 2018

by

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# Penn State Hemp Program

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2017 studies conducted in Centre County.

2018 studies hosted at Southeast Agricultural Research & Extension Center (SEAREC), Lancaster County.







## Studies conducted

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- Variety trial
- Response to Nitrogen
- Seeding rate
- Planting date
- Herbicide trial

Performance of five industrial hemp varieties in 2017 at Centre Co., PA and in 2018 at Lancaster Co., PA planted on May 30.

<b>Variety</b>	<b>2018 Yield (lbs/ac)</b>	<b>2018 Height (in)</b>	<b>2017 Yield (lbs/ac)</b>	<b>2017 Height (in)</b>
CRS-1	749	33.6	1349	40
CFX-2	739	26.6	1226	33
CFX-1	595	27.4	976	32
Piccolo	463	22.5	1104	29
Katani	444	23.3	845	27
<b>Mean</b>	598	26.7	1100	32
<b>LSD(0.1)</b>	84	2.2	244	4
<b>CV%</b>	12.8	7.5	21	11.3

## Varieties performed similarly from year to year

Top yielders were CRS-1 and CFX-2. Piccolo failed to outcompete weeds in 2018.





## PDA THC Testing

Variety	THC %	CBD %
CRS-1	0.28	0.64
CFX-2	0.18	1.48
CFX-1	0.05	1.37
Piccolo	0.13	1.30
Katani	0.04	1.05



## Impact of planting date and variety on hemp seed yield at SEAREC in 2018.

<b>Planting Date</b>	<b>Variety</b>	<b>Yield (lbs/ac)</b>	<b>Height (in)</b>
30-May	CRS-1	890	37.2
30-May	CFX-1	535	30.9
30-May	CFX-2	613	28.6
30-May	Piccolo	450	23.9
30-May	Katani	486	27.2
<b>30-May</b>	<b>Mean</b>	595	29.5
19-Jun	CRS-1	823	30.8
19-Jun	CFX-1	369	22.0
19-Jun	CFX-2	522	24.9
19-Jun	Piccolo	312	18.6
19-Jun	Katani	308	21.2
<b>19-Jun</b>	<b>Mean</b>	467	23.5

**Yield and height decrease with later planting dates.**

However, a viable yield can still be achieved.



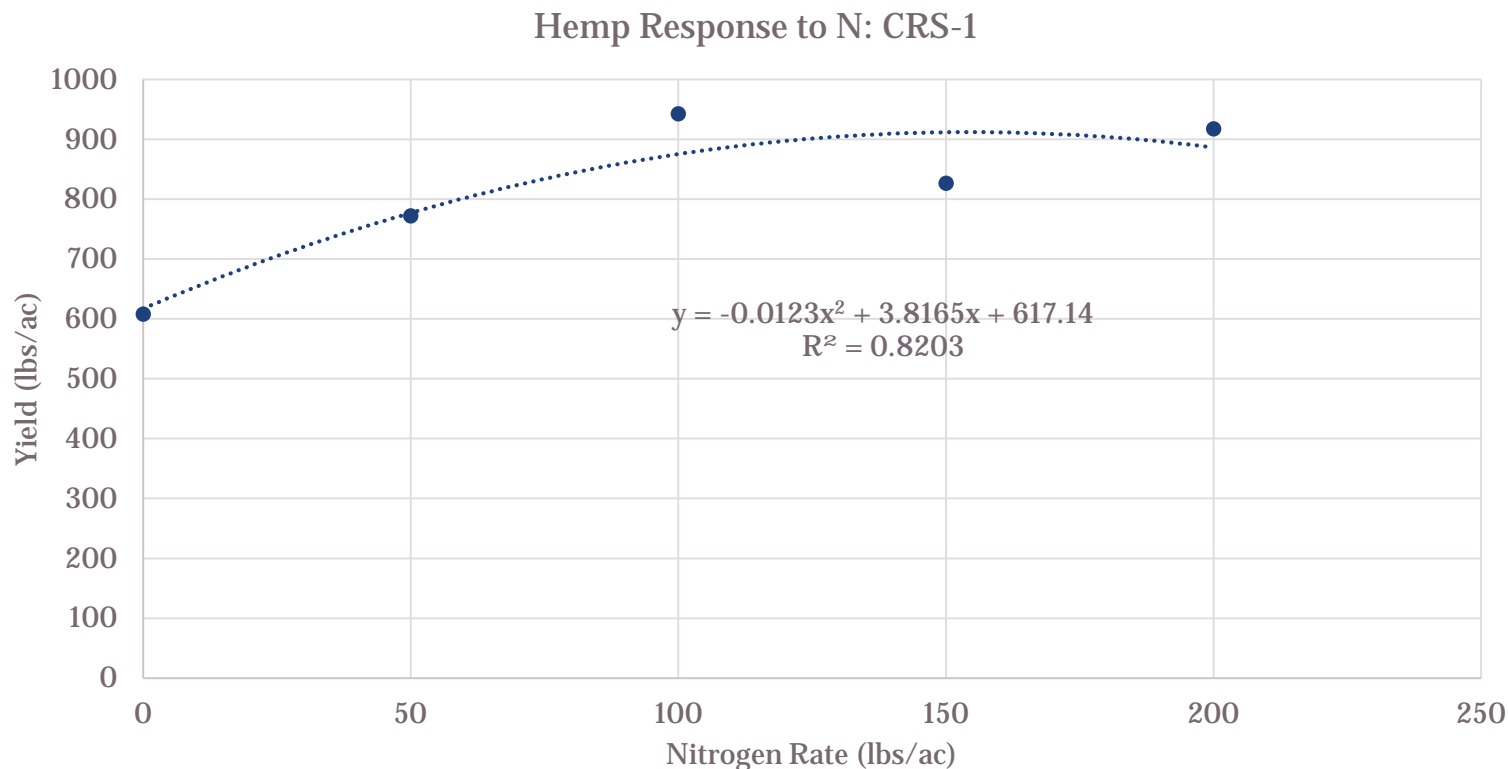
## Impact of seeding rate for hemp two varieties, CRS-1 and Pico on seed yield at SEAREC in 2018.

<b>Seeding Rate (lbs/ac)</b>	<b><u>CRS-1</u></b>		<b><u>Picolo</u></b>	
	<b>Yield (lbs/ac)</b>	<b>Height (in)</b>	<b>Yield (lbs/ac)</b>	<b>Height (in)</b>
15	893	39.8	518	24.4
20	921	40.1	532	23.9
25	1009	36.3	608	22.5
30	949	37.6	587	22.9
45	1077	37.4	593	21.8
<b>Mean</b>	970	38.2	568	23.1
<b>LSD(0.1)</b>	87	NS	NS	NS
<b>CV%</b>	8.1	3.3	12.6	5.0

**For both varieties tested, seeding 25lb/ac was sufficient.**

In 2017, optimum seeding rate was 30 lb/a for CRS-1 and 45 lb/a for Picolo.

# Response of hemp to N fertilizer applied as treated urea at SEAREC, 2018



**Yields reached maximum at 100lbs/acre urea (up front)**

In 2017, yields were maximized at 150lb/acre N.



## Impact of herbicide treatment on hemp seed yield and plant height at SEAREC in 2018.



Treatment	Chemical	Application	Yield (lbs/ac)	Height (in)
1	Untreated		554	25.7
2	Dual Magnum	PRE	489	26.6
3	Zidua SC	PRE	.*	-
4	Prowl H2O	PRE	-	-
5	Sonalan	PRE	583	27.2
6	Chateau	PRE	-	-
7	Reflex	PRE	-	-
8	Metribuzin	PRE	-	-
9	Caparol	PRE	-	-
10	Nortron	PRE	-	-
11	Upbeet, NIS	POST	473	21.6
12	Maestro/Buctril, NIS	POST	571	23.4
13	Resolve/Matrix, NIS	POST	-	-
14	Impact, COC	POST	-	-
15	Assure II, COC	POST	538	25.4
16	MCPA	POST	-	-
<b>Mean</b>			535	25.0
<b>LSD(0.1)</b>			NS	NS
<b>CV%</b>			24.6	15.5

**Most treatments resulted in unacceptable plant injury.**

No significant differences in yield or height between remaining treatments.



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# Challenges in 2018

Insects, disease, weeds, birds!

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## Outreach

- Ag Alternatives Factsheet
- Ag Progress Days
- Field Day at SEAREC
- PA State Police
- Chamber of Commerce
- Lancaster Farming Podcast







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# Changes to the Penn State program for 2019

New hemp team members!

Thanks to our research & extension  
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Mark Antle, Courtney Anchor, Jeff Graybill, Dwight  
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