Industrial Hemp in Kansas
Feminized Seed

What Are They? Seed produced in a manner so that resulting plants will be *nearly* 100% female. They are expensive ($1 - $2 per seed), but greatly reduce the chance of having a male plant in your population.

Why? Growing high quality plants for cannabidiol (CBD) production requires female Cannabis plants. Pollen produced by male plants will dramatically reduce the quantity of CBD produced in female flower buds. A grower can ensure they have female plants by investing in feminized seed.

Advantages:
- Nearly 100% female
- Time & space efficient
- Can be stored

Disadvantages:
- Cost
- Challenges of seedling production (pests and proper cultural practices)

Are feminized seed worth the investment?

- We conducted a study to determine if feminized seed were an improvement over open pollinated seed.
- Feminized seed, variety *Cannabis sativa* Otto II Stout[1] and open pollinated seed of the same variety were sown in the greenhouse.
- After 5 weeks the plants were exposed to short days to induce flowering.
- After 3 more weeks we determined the sex of the individual plants.

Results

Seed Type	% Female	Height (cm)	Germination (%)
Feminized	100 ±0	38 ±4	93 ±2
Open Pollinated	52 ±5	49 ±1	76 ±2

- While they may be expensive, feminized seed were 100% female and had a higher germination rate.
- Open pollinated seedlings were taller probably due to hybrid vigor.
- With open pollinated seed, a grower would have to cull 48% of their crop to eliminate males.

From open pollinated (left) and feminized (right) seed 8 weeks after sowing.

***Tip**: There are different methods to produce feminized seed. Not all are equally successful. Know how your seed were produced.
***Tip**: Laboratory analysis can determine plant sex long before visual identification is possible. Ask to see a report from the seed lot your seed came from.

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[1]**Special 'Thank You' to Colorado Hemp Genetics for donation of Feminized Seed**