Spring & Winter Safflower as a Potential Crop South Plains Region, Texas

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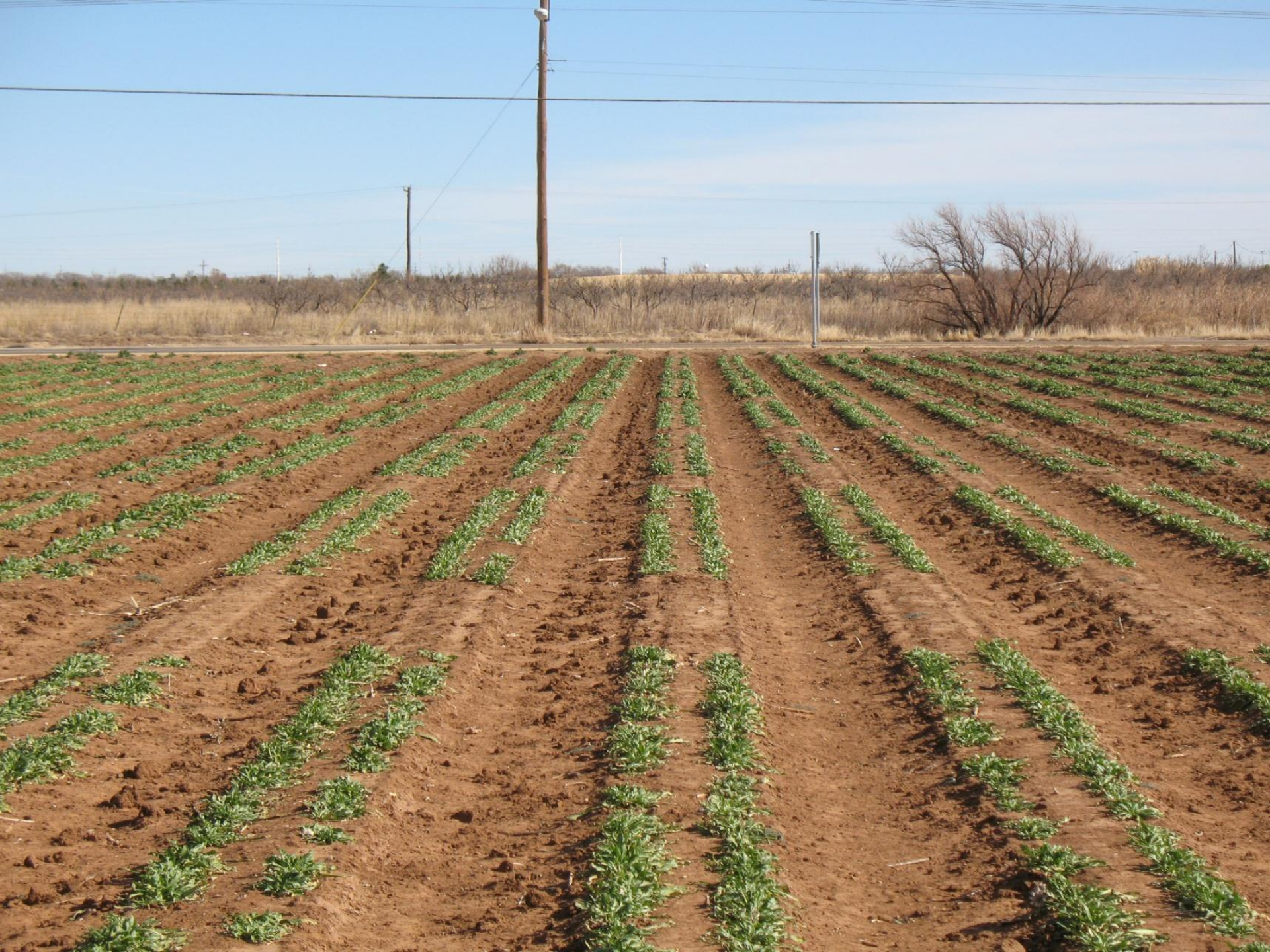
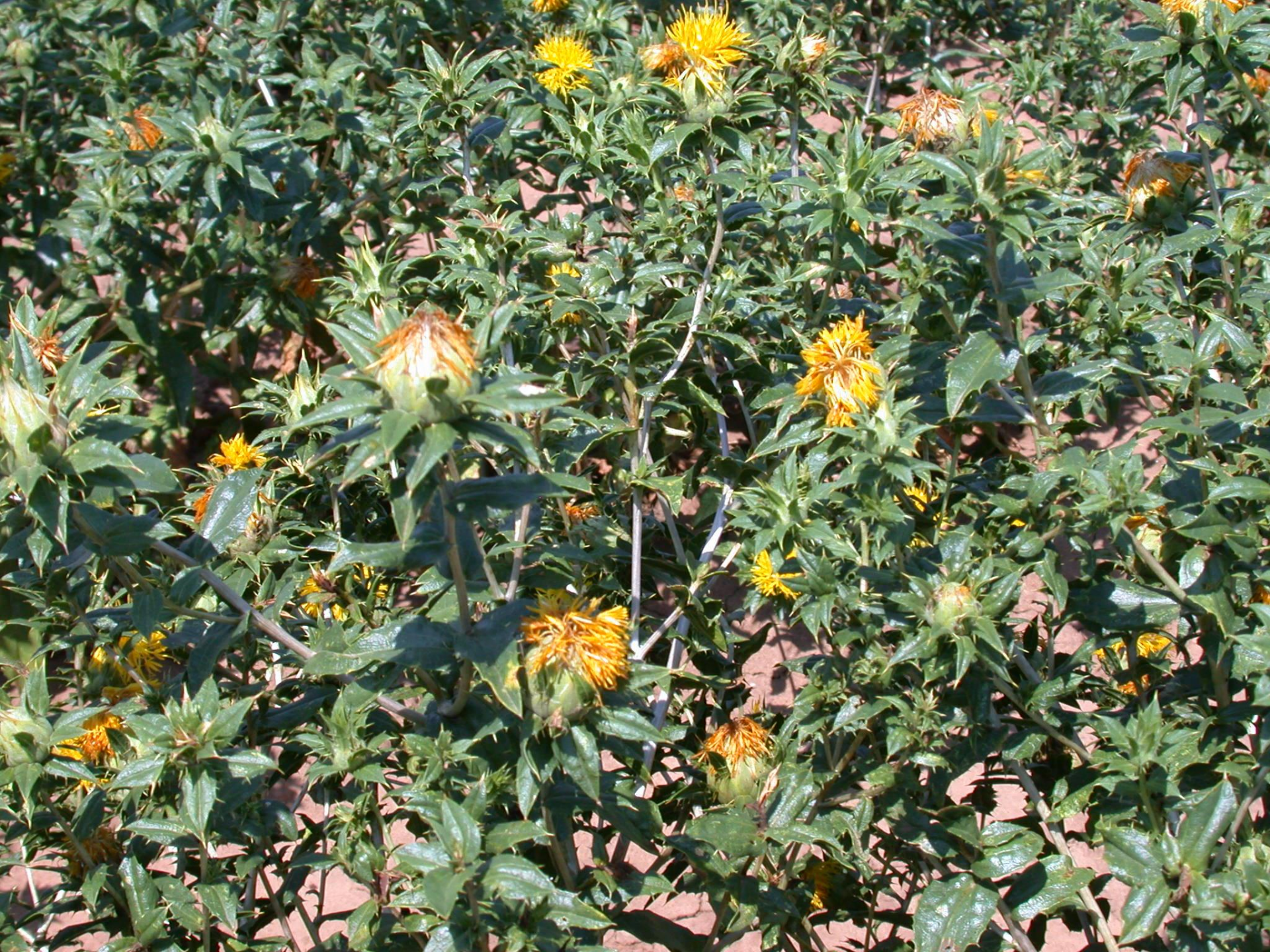
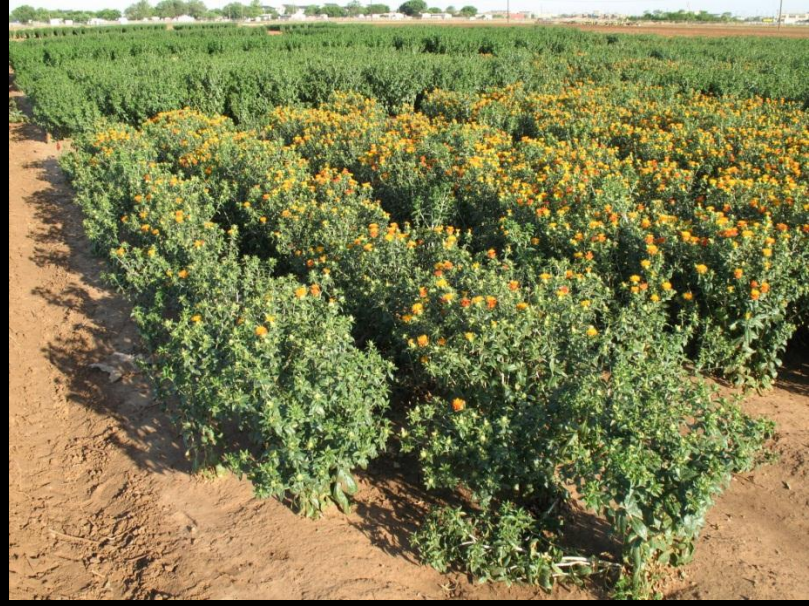
TEXAS A&M AGRILIFE EXTENSION





Safflower

Carthamus tinctorius L.



- Origin: Middle East
- Typical Oil Content:
  - 30-37%, average ~34-35%
- Premium Oil: Linoleic and oleic acid
- Disadvantages: Foliar and head rot diseases
- Advantages: Very drought tolerant due to extensive root system (3 to 10 feet)
- "The best location to grow safflower may be where it doesn't rain after flowering."

Safflower

- Planting experience so far suggests that safflower establishes relatively easily
- Like many oilseed crops, can you justify making fuel out of this oil which has valuable food and industrial uses?

Spring Safflower

- Best *time to plant?*
- *Seed germination can handle cold temps down to 40°F*
- *Initial TX South Plains seeding is best probably late Feb. to mid-March*
- *May plantings may suffer from heat and/or Botrytis head rot*

- What about July plantings with maturity in the cool fall?
- Most current commercial varieties are spring

Safflower Characteristics

- Safflower is adapted to dryland conditions and medium to clay soils that hold moisture well.
- With adequate moisture, it responds well to high soil fertility levels.
- Use standard equipment designed for the small grain or row crops.
- Safflower is deep-rooted crop and can use moisture and nutrients to 6-8’ in dryland.

Safflower Characteristics

- Maturity occurs four weeks after the last buds are in flower.
  - March 1 dryland planting in central and lower TX South Plains with adequate establishment, likely thresh in early June-July 1 or so.
- Safflower requires dry atmospheric conditions during the bloom period, a condition unfavorable for disease occurrences and favorable for good seed set

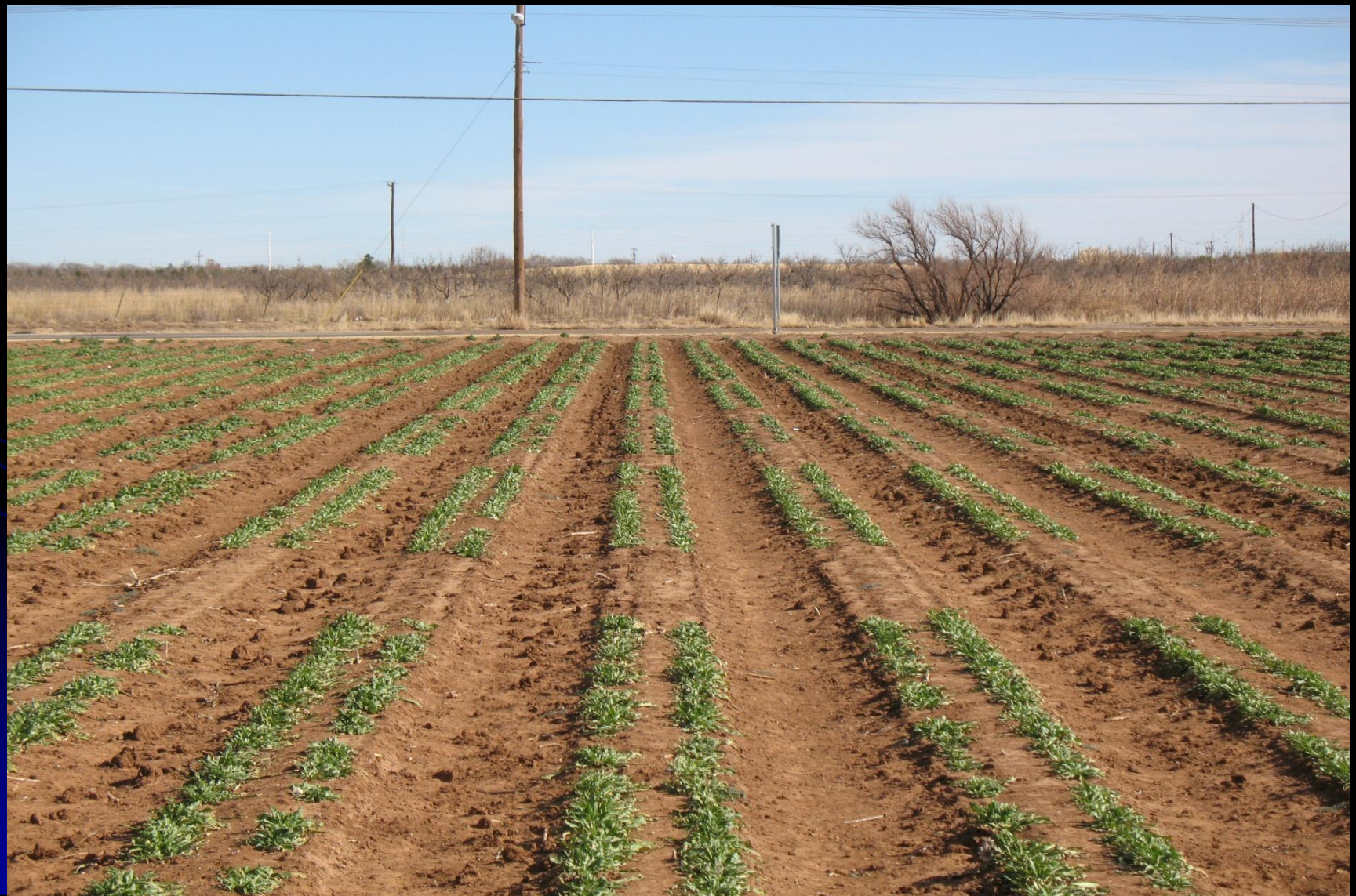
Safflower Characteristics

- Safflower in a rotation can be beneficial if planted when winter wheat fields become infested with grass-type weeds.
- This interruption decreases weed pressure and possibly disrupts small grain insect and disease cycles.

Safflower in Rotations

- Safflower and wheat
- Weed control options may be favorable, however, some states (Colorado) suggest that winter wheat not follow safflower (disease issues, removal of residual nutrients)
- Safflower should not follow safflower or sunflower

Early-spring stand (Irrig.)



Late May
(Excessive irrigation)

Mid-June

Harvesting

Markets

- Dreamland Industries, Abilene—$23.50/cwt (2012)
  - http://www.dreamlandusa.com/
  - Price up from $11/cwt. in 2010
- California Oils (markets into Texas?)
  - Have chosen to not actively compete in the High Plains region
- 34% oil content is standard (bonus/discount for oil content over/under)

Production Issues (1)

- When to plant, especially for spring types
- Texas South Plains region, project late February to mid/late March—Problem: No moisture!
  - Safflower seedlings are frost hardy to ~20ºF
- Mid-April & later may be a problem due to later summer heat
- Most safflower is drilled (your drill will have settings), but how might production compare if treated as a row crop?
  - Seeding in March means likely limited moisture, so planters rather than drills help place seed better to H_2O
  - Since weed control options are limited, then 30” rows might be feasible—you can still cultivate

Production Issues (2)

- N fertilizer will be needed—dryland, perhaps 30-50 lbs./A for optimum production
  - First time with deep root, maybe no N as safflower scavenges deep N
- This is something that is often overestimated, that safflower can ‘get by’ without significant applied fertility
  - Even with better 2012 safflower prices, you may not be interested in spending money on N

Production Issues (3)

- Yield potential in Texas needs to be established
  - Dryland, 1,000 lbs./A needed to be competitive agronomically (and better price—which we now have in 2012—needed to be competitive economically)
  - Irrigated, 2,000 lbs./A

Production Issues (4)

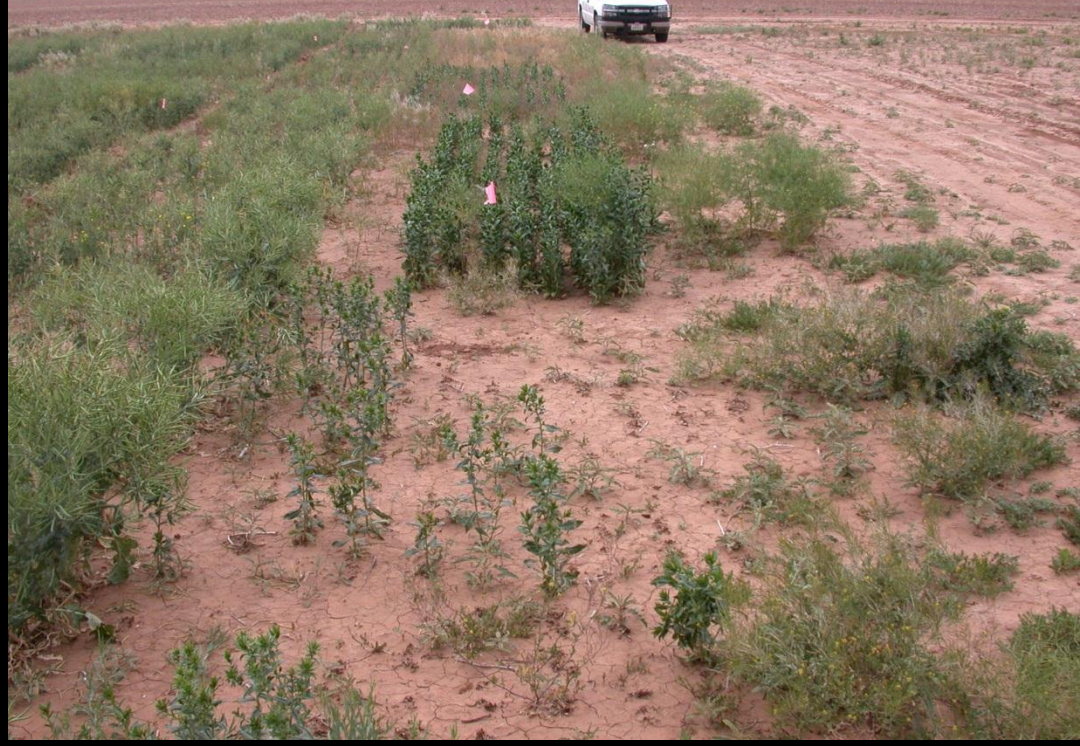
- Labeled herbicides for safflower—what weed problems can you handle with:
  - EPTC (Eptam)
  - Trifluralin/ethalfluralin (Treflan/Sonalan)
  - s-metolachlor (Dual)
  - Sethoxydim (Poast Plus)
  - Clethodim (Select Max)
- If you have significant broadleaf pressure then safflower may not be appropriate—safflower is not competitive in rosette stage (up to 4 weeks)
  - But early planting may minimize weed competition

Production Issues (5)

- Direct harvest with combine
  - Combine will have safflower settings (your drill will, too)
- Crushing facilities not so important
- Availability of seed—Contractor will have it for you
- Volunteer potential as a weed?

Winter Types vs. Spring

Taller winter hardy safflower in center vs. non-hardy spring type in front (almost all dead), Hale Co., TX



- **Total oil yield per acre for winter hardy and spring types may be similar**
  - **Initial tests: higher yield in winter types, but lower oil content**
  - **Planting opportunities for fall safflower, which needs to be planted we believe at least six weeks before average first freeze, may come by 2013**

Winter Safflower on the Texas High Plains

- Compliment existing winter wheat production with higher potential return.

- Winter safflower may be better economically due to:
  - Lower disease potential
  - More efficient water use
  - Reduced weed competition

Winter Safflower Field Conditions

- Key is not whether safflower will establish at a given time rather will it survive—and it needs to be established!
  - Lubbock region, plant by ~mid-September
  - Earlier to northwest, a little later toward Big Spring
- For established safflower lows of 5°F have no further stand loss
- Acceptable varieties must have ≥80% stand survival through the winter.
  - Commercial lines expected in 3-5 years (Texas Tech Univ. development and testing)

Winter Safflower Results

- % oil lower, yields higher
  - But this will cost processor more to get the same amount of oil
- No insect pests
- No disease problems
- Broadleaf weeds less of an issue except for mustards (tansy mustard, London rocket, etc.) for which there'd be no herbicide control method