



Common Mistakes in West Texas Alfalfa Production

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TCE is developing new educational materials for alfalfa producers in the Texas High Plains and Far West Texas. Look for further producer comments on what works well and what doesn't, as well as suggestions from research, extension, and industry colleagues. This is an initial list, which will be added to and expanded in more detail.

My goal is to provide tips that eliminate bad surprises and share comments and observations from a variety of alfalfa interests. The following topics are not necessarily ranked according to emphasis.

1) Failure to fit land area to irrigation capacity (seeding too many acres).

As an extension agronomist, here's the first question I often ask prospective producers who are looking at seeding new stands of alfalfa: "What is your irrigation capacity?" Do you have enough water to grow corn or peanuts? If not, then we shouldn't be thinking about alfalfa unless we cut the acreage. Recently, a landowner in Terry Co. indicated that their tenant planned to put in a circle of alfalfa (120 acres). That is a red flag! I know that few people in Terry Co. have enough water to water 120 acres of alfalfa adequately, and I noted the concerns. I once had a producer who wanted to put in 165 acres with 520 gallons per minute north of Lubbock. You be the agronomist! (The below calculation suggested that 60-65 acres was a good target.)

Follow the guidelines in TCE's 'Texas Alfalfa Production' (<http://lubbock.tamu.edu/othercrops>) to help you realistically fit acreage to irrigation capacity—let's make that July-August heat-of-the-summer capacity. Good irrigation application (low set nozzles, etc.) around Lubbock should require about 6", perhaps 7" to produce 1 ton of alfalfa (a little less in the Panhandle, more for sprinkler irrigation to the south around Pecos or Dell City). Many producers like to have at least 8 gpm per acre and prefer 10 gpm per acre. Remember that alfalfa growth and top production is related to the crop's ability to transpire water. It easily uses 0.35" per day in much of the hotter months, and topping 0.50" per day can happen as well.

A crop consultant recently commented "If an alfalfa producer is praying for rain, then they have too many acres of alfalfa."

2) Soil testing for this intensively managed crop, alfalfa.

OK, I am a soil scientist by training, and you would expect me to say that! Dr. Robert Flynn, NMSU-Artesia agronomist says it well: “Soil is a natural reservoir for nutrients—and a good reservoir...” Soil testing offers a grower the most potential benefit in high input, intensive cropping, which alfalfa certainly is. You get sick, you go to the doctor. What is the first thing their nurse does? She takes your temperature. Soil pH is akin to temperature. It is the first thing I want to know about a soil’s condition. It tells me naturally what might be a potential problem.

Furthermore, in alfalfa we probably waste a lot of money adding nutrients when there is already plenty there. Perhaps you are more comfortable maintaining a high level of fertility vs. providing what the individual crop needs. That is fine, but don’t overdo it. Soil testing spots potential problems.

Do you have someone, as a service, take soil samples for you? Do they do a good job of properly collecting the sample? If you apply compost, for example, did you tell them? That means they ought to scap of maybe ½” off the top so as not to skew the soil test results. Your dealer collected soil samples, had them analyzed gave you a recommendation. Did they give you a copy of the soil test reports? If not, ask for them. Learn what they look like over time and recognize potential problems if nutrients are in flux.

Part 2... And while we’re at it lets test that irrigation water quality also...

Your best test is late summer after irrigation capacity might have declined and salts or other elements may accumulate. Established alfalfa can handle salts better, but a young seedling crop can be quite sensitive if electrical conductivity (EC) is elevated. Texas production where salts have been a problem I am aware of are around Pecos.

3) Inadequate seedbed preparation.

Alfalfa seed is small. You can’t reliably seed it more than about ½” deep (by necessity you might have to go towards 1” deep on a very sandy soil else the seed dries out). It needs a firm seedbed lest some of your seed end up too deep when you seed a fluffy soil. Ideally, I like to see producers prepare the seedbed up to a month ahead of time to increase the chance they can get a packing rain. Irrigation won’t pack it as much. After that last tillage operation, run a packer or pull one with your tillage equipment.

Rule of thumb: A properly packed seedbed should yield probably no more than 3/8” to your shoe heel when you walk across the field. Seeding a fluffy soil? You probably need to bump up your seeding rate, and that drives up establishment costs.

We know alfalfa costs a lot to establish. We certainly don’t want to have to patch around filling in thin spots if the seedbed wasn’t firm. Seeding for the first time? Talk to area growers to ensure you understand the importance of seedbed condition.

4) Potential pitfalls associated with spring seeding when fall seeding is available.

I didn't flat out say "No spring seeding," but I feel that way. I know some producers in West Texas that have had success with spring seedings. They tend to be experienced growers. Many of them prefer the fall anyway. Insect pressure is minimal in the fall, weeds are on their way out and don't compete (this is good because your herbicide options are limited until 2 or 4 trifoliolate leaves are established in many cases), and you don't face near the threat of blowing sand wiping out seedling alfalfa even if you have seeded into oats as a cover crop.

Several producers have told me they have seeded spring and fall. They won't do it in the spring again. Oklahoma research suggests that spring-seeded alfalfa there never quite catches up in yield to fall seeded stands.

Another thought—Roundup Ready alfalfas will be widely available in 2006. Use this tool to manage real needs—your weeds, not to do something you might otherwise avoid (spring seeding). RR alfalfa will be very expensive, and you don't want to be risking additional establishment costs with early season insects or blowing out the stand.

Bottom line: Don't gamble your establishment costs in a spring alfalfa seeding, but **invest** them in a fall seeding.

See "Pitfalls of Spring Fever Alfalfa" for further discussion at <http://lubbock.tamu.edu/othercrops>

5) Underestimating P fertility requirements for alfalfa and effectively getting that P into the system so the alfalfa can use it.

Phosphorus is immobile in the soil. Once you place it, it moves very little. Nitrogen, in contrast, is mobile. Remember that soil test we're encouraged to take? It is highly important for proper P nutrition in alfalfa, which requires about 15 lbs. per acre of P₂O₅ per ton of production. And high pH soils are not favorable to P availability. So if you produce 6 tons of alfalfa per acre for 5 years, you need about 450 lbs. per acre equivalent of P₂O₅.

I like to see producers move toward incorporating at least Year 1 and Year 2 P needs prior to seeding when you can work the P into the root zone. For the same reason we might think about including even Year 3 P, but at some point in our high pH soils increasing P will further tie up important micronutrients such as iron (Fe) and zinc (Zn). Your soil test will take you a long ways toward recognizing what P fertility is needed. Otherwise, if you start with limited P you are essentially completely reliant on surface applied P to provide your needs.

Having made the case for application of extra P early, some producers in the Pecos and Ft. Stockton areas do feel they can readily tell where mid-season P is left off the field, even in mid-season applications. This has not been tested.

6) Using cheap seed.

I bet you could have guessed I would address this. OK, I won't disappoint you. First, let's separate the issue of cheap seed vs. poor seed quality. As Leonard Lauriault, NMSU-Tucumcari has noted, "You get what you pay for," and that is especially true with alfalfa.

If I have the opportunity to consider inexpensive seed, here are the questions I want to ask: How old is the seed? What variety is it? (If they don't know, why would you want it?) What is the germination? Does it have weed seed? Does it have *Rhizobium* inoculant on it so I am more likely to get nodulation and nitrogen fixation for my nitrogen hungry alfalfa? Has the seed been stored out of the heat? Is the seed a blend? Does this seed and the variety it represents have a broad cross section of insect and disease resistance, at least a high or 'H' rating to pests I anticipate in my production?

Now those are good questions to ask—and answer—for any alfalfa. Keep in mind that a reputable seed company is looking out for you on this because it is in their best interest to have you as a satisfied customer.

Yes, I have seen the occasional trial results that report that 'Texas Common' or 'New Mexico Common' yielded just as well as other varieties. But keep in mind that if you are pushing management on your crop, newer improved varieties are truly newer and improved and should have more potential.

In 2003 a producer called to say he was head to who knows where to buy 'Mesilla' alfalfa at \$2.00 per pound. He was planning on saving about \$30 per acre in seed costs. I had heard of Mesilla, an old NMSU release in 1978, superceded by 'Doña Ana.' How did he know it was Mesilla? He doesn't. He probably can't.

I suggest to DS that if he seeded 20 lbs. per acre of a good variety costing \$3.50 per pound, then his seed costs were higher by that \$30/A he noted. Now for a five-year stand and alfalfa production at \$120/ton, how much more alfalfa would he have to produce to make up the difference? A lot? A little? The answer: 100 lbs. per year. Don't we believe that a modern variety could do that? And you know what you're getting, seed is treated with *Rhizobium*, etc.

Bottom line: Good quality seed of a reputable proven variety, even if pricey, manages (reduces) the risk you take as a producer. Hard as it is, I urge producers to set aside price initially, identify a few alfalfa varieties adapted to your area with a good package of insect and disease resistance, then introduce price as a consideration. Choose your variety, then vow to use your best management.

7) Seeding unnecessarily high rates (doesn't hurt, but then little benefit either).

If your stand establishment benefits from higher seeding rates (say more than 15-20 lbs./A seed product north of Lubbock; more than 20-25 lbs./A seed product south of Lubbock), then you may not have adequate seedbed preparation. I assert that adequate seedbed preparation can readily save you 4-8 lbs. of seed per acre. Figure the dollars on that amount of seed savings!

Alfalfa starts out thick in a good stand, but tends to thin down quickly to probably similar plant populations even if you used an extra high seeding rate.

I will concede, however, that you may feel uncomfortable lowering seeding rates to say 15 lbs. per acre (or even slightly less). You are reasonably concerned that if for some reason the stand ends up thin, you could jeopardize your yield potential, and you know well that it is costly to have to reseed if the stand is not up to par. So, if you it makes you feel better, bump that seeding rate back up 5 lbs./A. But ensure you have done what is needed to have a good seedbed and seed the alfalfa at least 6 weeks and preferably 8 weeks ahead of a killing frost so the crown is initiated.

An adequate stand of alfalfa can still compete well against weeds. And if initial plants are fewer then these plants have the opportunity to compensate with larger crowns and more buds (hence stems) per crown.

Experienced producers have learned a lot about stand establishment. One Scurry Co. producer notes he never has trouble using 17 lbs. of seed per acre, a reduced rate compared to when he first farmed alfalfa.

8) Failure to identify then control early season alfalfa weevils.

We are learning more about the potential to significantly reduce alfalfa weevils with early season sprays. Entomologists and consultants agree that a single early season spray can reduce alfalfa weevils, and they don't recover and become a problem later. The contrast is potentially having to spray two times or more later in the season if the weevils go unchecked. That spray might come as early as early March, particularly if you have a semi-dormant alfalfa which provides green forage AND temperatures get to near 50 F and above and the alfalfa weevil becomes active.

Shredding or baling remaining stems or late fall growth reduces alfalfa weevil larvae as does winter grazing.

Scout early! For more understanding on this topic, contact your IPM Extension entomologist or regional specialists such as Dr. Pat Porter, Extension entomologist, Texas A&M—Lubbock, 806-746-6101, pporter@ag.tamu.edu

9) Keeping the leaf on the stem during baling.

You can not produce the high quality alfalfa you aspire to if the leaf doesn't stay on the stem. Don't like baling at night when the humidity is higher? Then accept that your neighbor might have an advantage on high quality markets that you won't realize.

On the other hand, if you do a good job of producing high quality alfalfa with the leaves intact, then promote your quality and don't give your hay away. And if you are feeding alfalfa yourself, don't waste high quality on animals that don't require it.

10) Lack of understanding of forage quality for alfalfa and how it is important.

There are enough terms and acronyms like ADF, NDF, NME, RFQ, etc. to think that you are reading something that the government produced. I don't find it easy myself, and I am supposed to understand complicated stuff. I need to do a better job of helping educate producers. If you are going to expand your alfalfa marketing to high quality uses, then we have to learn the lingo. A simple start is "Understanding Forage Quality Analysis" L-5198, <http://lubbock.tamu.edu/othercrops/forage.php> Dairies have their own lab to analyze forage samples. You might need yours, too.

A recent trend is that RFV is still important for high quality alfalfa, but it is not the only thing that forage buyers and consumers look at. In fact, you as a grower might feel that either the bar has been raised (even higher RFV alfalfa demanded) or the rules have changed (other parameters used instead of RFV).

11) Far West Texas--Failure to keep an eye on salinity and salts in irrigation water, their potential accumulation in soil, and managing them properly.

A good resource is "Irrigation Water Quality Standards and Salinity Management," L-1667, which explains salinity, salts, chlorides, sodium, and other potential yield limiting factors in waters and soils. Alfalfa can tolerate an electrical conductivity (EC) of about 2.0 without yield losses in the soil, but if irrigation water is saline, then soil salinity will increase in the absence of flushing rains or leaching irrigation. The EC limit beyond which yield reductions in alfalfa might occur is about 1.3 for irrigation water EC.

Furthermore, for comparison, alfalfa tolerates about 700 ppm chloride, but wheat, wheatgrasses, bermudagrass, and barley can handle 2-3 times the chloride that alfalfa can without reduced production.

I mentioned above—take a water test. Keep a record over time. If you are in a water district that takes water samples, be sure to ask for the reports.

Salinity can be managed although perhaps inefficiently. Recently some pivot irrigation alfalfa around Pecos has returned to flood irrigation to help manage salt and salinity buildup. That is not an easy decision and increasingly growers may decide that if they can't use irrigation means other than flood that alfalfa might not be appropriate.

12) Irrigation management and timing, including equipment selection and maintenance.

The equipment you use, the management of irrigation timing, optimizing efficiency of water applied, etc. are going to become more important. I will ask the irrigation experts to update this section. Those repairs or upgrades you have been putting off? Get it taken care of. Use the lowest set irrigation nozzles you can, preferably no more than 6-12" above the canopy when the alfalfa is at its tallest. This evaporates less water. When is the last time you had your pumping plant tested for pumping efficiency?

13) Relying too much on a particular variety to deliver top results.

Assuming you have selected an alfalfa variety to seed which has a broad array of 'H' and 'HR' resistance ratings for various insect and disease pests, I seed, I add water, and "*Voila*" I have success! No? Here's my question to a young alfalfa farmer at Dell City: "How much of the success of your alfalfa production is due to your alfalfa variety vs. the way you manage your crop?" This young man recognizes quite well that HOW he farms his alfalfa (vs. what variety he chose) has much more potential impact on his successful alfalfa production.