Surviving Low Price Years in the Alfalfa Industry

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2016...
A Year Many Hay Growers Would Like to Forget

- One of the most challenging years in recent memory
- Reminiscent of 2009
- Growers preparing for next season with caution given mediocre outlook for hay prices and shortage of cash

So...many growers looking at pulling back on inputs. Can lower yield, quality and profitability so need to carefully scrutinize each input before reducing.
HAY GROWERS: PLEASE HELP US TO DETERMINE THE BEST WAY TO SURVIVE A 'DOWN' YEAR IN HAY PRODUCTION!

The 2016 alfalfa production season has been one that many producers would like to forget. Prices have fallen dramatically since 2014, and even at low prices, hay movement has been sluggish for most of the year.

At this year's California Alfalfa Symposium in Reno in December, Steve Orloff will make a presentation titled Cutting Costs in a Down Year: Where to Cut and Where NOT to Cut Corners. To prepare for this presentation in addition to his own thoughts, he would like to get feedback from alfalfa producers on what you do in a low-price year.

Please take a few minutes to respond to the questions below. If you hate surveys and have no time and don't want to do Steve Orloff a favor, please at least answer just the first question.

Thank you in advance. (Please respond by October 29th at the latest.) This survey is intended for alfalfa producers only.

* = Required

What is your role in alfalfa hay production? (note survey is for producers only) *
- Alfalfa Producer or manager <100 acres
- Alfalfa Producer or manager >100 acres
- Not an alfalfa producer

In response to the low prices in 2015-2016 which of the following did you do? (Check all that apply) *
- Abandoned lower producing fields.
- Did not plant any new fields.
- Cut back on seeding rates.
- Planted a cheaper variety.
- Used less tillage for planting.
- Did not fertilize or reduced rates.
- Used less insecticide.
- Cut more frequently for quality.
- Quit irrigating mid-season to save water.
- Applied less water per cutting.
- Did a better job or irrigating (soil moisture sensors)
- Reduced my work force - did more work myself.
- Purchased less equipment (tractors, etc.)
- Did nothing special

Indicate the state where your farm is located. *
- California
- Oregon
- Washington
- Nevada
- Idaho
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What did you do in response to low prices in 2015-16?

- Purchased less equipment (tractors)
- Cut more frequently for quality
- Did not plant any new fields
- Did not fertilize or reduce rates
- Abandoned lower producing fields
- Nothing special
- Reduced work force-did more myself
- Did a better job of irrigating
- Used less insecticide
- Applied less water per cutting
- Quit irrigating mid-season to save water
- Used less tillage for planting
- Planted a cheaper variety
- Cut back on seeding rates

- 45%
- 40%
- 35%
- 30%
- 25%
- 20%
- 15%
- 10%
- 5%
- 0%
Most common response to depressed market: Purchase less equipment—42% of participants

Best to purchase new equipment as needed on a regular basis so that not all the equipment needs replacing the same time.

Prices often lower in year like 2016 so if grower has funds and plans to stay in the hay business long-term, equipment purchase in a low price year may be a good idea.
Larger difference between *Premium* and *Supreme* in depressed market

- Price spread in CA was often greater than $100 per ton
- Sometimes *Supreme* quality hay was actually worth twice as much as *Fair* quality hay
25% used combination of shorter and longer intervals

- We advocate combined approach
- Extremely difficult to produce “high-test” hay in mid-summer
- During hot temperatures of mid-summer, internode length greater resulting in a lower leaf:stem ratio
- Stems are lower in quality due more rapid accumulation of fiber
Most popular response after purchasing less equipment and not planting new fields was to not fertilize or use reduced rates.
Did your fertilization program change?

- Cut out fertilizer: 10%
- Reduced rates: 20%
- Tested more and scrutinized rates: 25%
- No Change: 50%
Fertilization Philosophies

• Recipe or “cookbook”
  Apply a fixed amount of fertilizer that seems to have worked in the past. Eventually results in over- or under-fertilization

• Soil Test Level Maintenance
  Apply nutrients removed by crop harvest even when the soil test level sufficient. commonly used in Midwest

• Critical Value
  Nutrients should only be applied when an economic yield increase is likely
Critical ammonium acetate equivalent soil K levels, 2010.

The critical level is typically where recommended rates drop to zero in sufficiency approaches or to crop removal in build-maintenance approaches.

Source: Paul Tracy, Winfield Solutions
Which nutrients are needed?

- Because of its extensive root system that is able to take up nutrients that are often unavailable to other crops.
- **Almost never** an economic yield increase from N
- P is by far the most commonly deficient nutrient in alfalfa in the West
- Sulfur (mostly just the intermountain area)
- K fertilization sometimes promoted, but deficiency is rare.
- Micronutrient deficiencies are almost unheard of.
  - Zn sufficiency guidelines are found in publications
  - micronutrient applications (except sometimes B and Mo in the intermountain area of CA) are not recommended or economical.
- Replicated fertilizer test strips are recommended before making whole-field applications of any nutrient that is rarely deficient in alfalfa.
Economics: Will yield increase cover cost of fertilizer?

![Graph showing the relationship between 11-52-0 rate (tons/A) and yield (tons/A) at different hay prices ($100/T, $120/T, $140/T).]
Reduced Rate?

- If soil or tissue indicates field is deficient
  Full application justified
- Upper end of marginal or lower adequate
  Can use 2/3 or 3/4 rate
- Higher values
  Skip a year or two
- Greatest response from initial increments of fertilizer
- Don’t overdo. Sort term cost savings don’t want excessively deplete soil.
Be Careful Not to Overdo It!

It takes 25 pounds of additional \( P_2O_5 \) above maintenance levels to increase the soil level by 1 ppm.
Select Most Cost-Effective Fertilizer

- Rather than cost per ton for “typical” application, calculate cost per pound (unit) of nutrient needed (cost per pound of fertilizer divided by concentration)

- For phosphorus cheapest per pound $\text{P}_2\text{O}_5$ typically 11-52-0

- Complete mixed fertilizer or foliar liquid fertilizers typically not cost effective. Alfalfa removes large quantities of nutrients

- AVOID snake oils!
Site Specific Management

Variable rate of fertilizer to account for differences in soil fertility levels
Clean Hay Pays in a Down Year

- Apply more
- Apply less
- Less expensive herbicides
- Did not change
Economics of Weed Control in a Down Year

• Depends on weed infestation
• Usually plenty of weeds
• Judging by hay market reports hay infested with weeds $10-30 discount
• Greater with weeds like hare barley or groundsel
• Typical weed control costs $25 to $45 per acre
• First cut 1.5 to 2 (or more in IM)
• Therefore… Cost effective
• Not only weedy hay discounted may not be possible to sell
• Weed seed bank…
Summer Grass Control

- Hay infested with summer grasses discounted $15-20 within a hay grade
- May infest nearly all summer and fall cuttings in warm growing areas
Opportunities to lower costs

• Essential to know the weeds that will be present in your field
• Potentially save money by applying herbicides earlier in the season and use soil residual herbicides alone
• May still be wise to tank mix with a contact herbicide (paraquat, Sharpen or Shark) but a lower rate
• Work with pest control advisors and accept risk of less than perfect control
• In RR fields may be fine to use glyphosate alone
Insect Control

- Sprayed less
- Cut early
- Sprayed more
- No change
Insect Control

• Base treatment on insect counts noting presence of beneficials (IPM) rather than calendar basis

• Even in poor price years, insecticide application generally warranted when pests reach economic threshold

• Oftentimes yield increase of $\frac{1}{10}$ ton all that is needed

Ordinarily if the pest population is above the threshold and >2 weeks before cutting, insecticide treatment advisable
Economic Threshold

- **Definition**: Pest density at which control should be exerted to prevent a pest population from increasing further and causing economic loss.

- In theory, should be continually revised to account for:
  - new varieties
  - new management practices
  - variation in both commodity price and cost of insecticides or other control measures
  - efficacy of the chosen control measure
“Current” Economic Threshold

20 larvae/sweep

Developed in early 1970’s and remained fixed since first published over 40 yrs. ago

Similarly, aphid thresholds developed in 1970’s, before varietal resistance integrated into most alfalfa varieties

Aphid thresholds based on the number of aphids per stem, practice rarely done by PCA’s or growers

A better threshold for when blue alfalfa aphid and pea aphid co-occur (which is quite common) is also needed
Tweaking Insect Thresholds

• Lack of reliable up-to-date **economic** thresholds has left growers and PCA’s on their own
  • many PCA’s feel AW threshold should be lower than 20/sweep
  • most don’t use the stem count sampling methods for aphids
• Therefore, some fields treated prematurely when pests are merely present
• Growers should inquire about insect numbers
  • make sure standard monitoring procedures are used
  • rather than merely treating when the pest is present or as a “preventative” measure
• Treating prematurely can often make subsequent pest pressure worse by killing beneficials
• **Current thresholds** have limitations but do provide a baseline that can be “tweaked” or modified
53% of the growers surveyed did not change their irrigation practices. Of those who did, hay prices were not the primary cause. (35% changed due to water supply, only 12% due to low prices.)

No question irrigation is one of the most critical inputs for alfalfa production in the West.
Irrigation Practices

- No change, same as always
- Upgraded irrig. equipment & management
- Irrigated more carefully (ET, moisture sensors)
- Irrigated less per cutting
- Quit irrigating some fields partway through season
- No irrigation after last cut
- Completely quit irrigating some fields

0%  5%  10%  15%  20%  25%  30%  35%  40%  45%
In low price years can overall profitability be improved with deficit irrigation?

**Two basic approaches:**

**Reduced irrigation amount**

Applying less water throughout the season than the crop actually requires for full yield.

**Irrigation Cutoff**

Irrigation ceases part way through the season and subsequent cuttings foregone.
Irrigation after the last cutting... Is it needed?

• Interesting question in itself, regardless of hay prices
• Authors have conducted numerous cutoff studies
  – yield has bounced back the following year
  – earlier irrigation cutoff than just not irrigating after the last cutting
• Most areas irrigation after last cut unnecessary
• Key is to start off the following season with a full soil profile
Stand Establishment

- No or fewer new fields
- Less fertilizer
- Less tillage
- Cheaper seed
- No herbicide
- Lower herbicide rates
- Reduced seeding rate

0% 10% 20% 30% 40% 50% 60% 70%
May be tempting to consider eliminating weed control when population appears low.

However, seedling phase is not the time!
Less Fertilizer?

- Most popular input to reduce
- May be possible in some cases
- Only adequately evaluated with pre-plant soil analysis.
- Phosphorus is important for seedling root development and this is the only time when P can be incorporated.
Soil Impediments... Can limit growth for life of the stand
Alfalfa is Alfalfa.

Just buy the cheapest alfalfa seed available?

Definitely NOT!!!
Can Seeding Rate be Reduced?

Wide Range in Seedling Rates in the West

10 lbs/A to as high as 40 lbs/A
RR Alfalfa seeded at 12 lbs/A
**Diminishing Return Curve**

- **Most Responsive**
  - Each increase in the level of inputs results in a significant increase in yield. It pays to invest in increasing inputs in this phase, even in low-price years.

- **Diminishing Returns**
  - Each incremental rise in input leads to a decreasing rate of yield increase. Profits are maximized somewhere in this phase. In a low-price year toward the lower part of this curve.

- **Negative Returns**
  - Increasing amount of an input has no effect or even a negative effect on yield. Best to cut back on inputs.
Tried more direct marketing

Looked for more or different buyers

Employed other marketing methods

Changed bale size to target diff. market

Stored more hay
Summary

• No sure-fire universal recommendation for how to cut costs without reducing overall profitability
• Carefully examine each input and identify appropriate level that results in maximum economic yield.
• Maximum economic yield often occurs at 90 to 95% of maximum yield, and in a low price year, this percentage is likely lower
• Soil or plant tissue test to fertilize by “prescription” rather than “recipe”. May use 2/3 or 3/4 rate in short term
• Perhaps slight reduction in irrigation (not as much water to account for nonuniformity)
• High level of management important in all years but especially in low price years.
• Reducing inputs increased level of risk and need for higher level of management.
Comments

• Seeking higher price clientele (direct marketing to horse properties vs. dairies and brokers), extend stand life when possible, hold 3rd year fields into fourth year then take only first three cuttings.

• You can't cut fertilizer or herbicide because it makes your hay less appealing to buyers, especially if it is dirty. I think in down years you have to farm better so that can sell your hay.

• Tried reducing fertilizer, cost us way more than it saved. After 2nd cutting we restarted our in-season fertilizer program and brought our yields back up.

• Kept my day job which pays pump costs. Kept outside labor to a minimum.

• I killed alfalfa after one or two cuttings and planted other crops.

• Never skimp on your inputs or practices, because in a down year is when you need to really maximize your yield potential!

• Sold my farm with agreement to custom farm for the new owner

• Cut earlier than ever before to get better test. Tarpped it all.

• Stored more hay and bought more cows so if you can't sell it…feed it

• I have worked very hard for many years to establish a market and I've been loyal to my customers. It has paid great dividends this year.
Comments

• Was hard to make test hay this year. Seems like the Test Labs are lower this year than ever before. Something is not right. We need all labs to use the same methods and criteria and based on 100% not 90%.
• Customer service. Purchase lower quality hay for my usage and sell better quality hay produced. Take advantage of lower investment costs, equipment etc., to improve production and efficiency.
• We canceled a treatment for worms in July. Big mistake. The yield suffered on that cutting and the next.
• Spend only on what will pay for itself in the long term. I try not to get greedy and move as much hay as I can when I feel the market is reasonable, knowing it can always get worse.
• Convince dairymen, alfalfa is still best source of protein. Nutritionists are most at fault in converting dairymen from 18 - 2 lbs of alfalfa per day.
• Have not planted any new fields for two years. Do not intend to grow alfalfa after 2016. Changing to more lucrative crops.
• My profitability secret is to not plant alfalfa.
• Ride it out
• I do not complain.
• I add some marijuana to my hay bales to make them more valuable
Agents uncovered a total of 17 bundles weighing 431 pounds with an estimated street value of $344,800. The driver was arrested and turned over to the Drug Enforcement Administration along with the bundles of marijuana.