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Alfalfa Quality Means Profits

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ALFALFA
Quality Means Profits

COOPERATIVE EXTENSION SERVICE • PURDUE UNIVERSITY • WEST LAFAYETTE, INDIANA
The most prominent forage crop grown in Indiana is alfalfa. It has achieved this status because of its high yield and quality and its long-lived stands. The average yield of alfalfa hay in Indiana the past decade was 3.2 tons per acre, according to the United States Department of Agriculture Crop and Livestock Reporting Service. This average yield could exceed 5 tons per acre if improved production practices were utilized. However, for these high yields to be realized additional managerial inputs are required.

Much opportunity currently exists for people interested in growing alfalfa as a cash crop. One must be cautious about this cropping decision, however, because establishment costs are high, marketing strategies are more complex, and there are more weather-related risks than with grain crops. For the producer with a forage-livestock operation, there is opportunity for improvement through recognition of the influence that the two facets of the operation have on each other.

The intent of this publication is to discuss important alfalfa management practices and cost relationships so improved profit potential can be realized.

**MANAGEMENT PRACTICES**

**Site Selection**

One of the greatest limitations to alfalfa production across the state is soil type. Soils that have poor internal drainage are not conducive to long term alfalfa stands. In addition, the fragipan soils of south central Indiana present problems because root heaving can occur when soil temperature fluctuates in the late winter. These soils are better suited for red clover production than alfalfa if a high quality forage crop is desired. The best guide available to discern if a soil type can support long term alfalfa production is a county soil survey map, readily available at the Soil Conservation Service office in each county.

**Soil Testing**

Alfalfa should not be grown if a producer is unwilling to amend his soil with the proper amount of limestone as indicated by a soil test. The water pH of the soil should fall between 6.6 and 7.0. Many farms where feed grains are grown do not have a soil pH at this level. The soil pH should be amended with the recommended amount of limestone, preferably 6 months before seeding, and worked into the plow layer. Liming rates greater than 4 tons per acre should be split, half applied prior to primary tillage and the remainder applied prior to secondary tillage. No-till seedings of alfalfa are becoming more common following a small grain harvest. If no-till seedings are to be successful, the soil pH must be in the desired range before planting the crop. Applying limestone to the soil surface of a newly sown or established field has limited value. Soils must be in the desired pH range so the rhizobia bacteria can properly fix nitrogen (N) for the alfalfa.

Phosphorus (P) and potassium (K) fertilizer should be applied prior to seeding and at the recommended rates according to the soil test. If the fertilizer is applied before primary tillage, 30 pounds of P₂O₅ and K₂O should be applied before the final tillage practice to provide a starter effect. A small amount of N, 15 pounds per acre, should be applied on low organic matter soils so the crop is N sufficient while the seedling develops nodules for N-fixation.

**Seedbed Preparation**

The primary tillage operation depends upon the preceding crop. If the crop was corn for grain or a small grain, the primary tillage is best performed by a moldboard plow or a chisel plow. The chisel plow or tandem disk is generally satisfactory if the previous crop was soybeans or corn silage because there is less crop residue. If greater than 4 tons of limestone per acre and high rates of P₂O₅ and K₂O are to be applied, it would be advisable to avoid the tandem disk. The tandem disk does not incorporate the amendments deeply enough if it is used as the primary tillage tool.

The most effective secondary tillage tools are the field cultivator, tandem disk, or “soil finishing” implement. A firm seedbed is essential for establishing alfalfa. A loose seedbed dries out too rapidly, and the roots will die if they encounter air pockets in the soil. The seedbed can be made firm by using a cultipacker, a cultimulcher with the “teeth” up, or by using a “Brillian” seeder. If a footprint is more than one inch deep, the seedbed should be firmed again.

**Variety Selection**

Variety trials conducted by most midwestern states indicate that recent variety releases will yield 5-20 percent more forage than old varieties such as ‘Ranger,’ ‘Buffalo,’ ‘Vernal,’ or ‘Common.’ While these newer varieties are more expensive than the older varieties, the additional seed expense will easily be recovered during the first year of hay production.
An alfalfa variety should always have high yield potential, possess bacterial wilt resistance, and be winterhardy. If grown on soils that are rated less than well drained, a phytophthora root-rot resistant variety should be selected. Resistance to anthracnose, another disease commonly found in Indiana, is an added benefit.

**Pure Stand or Mixture**

An alfalfa-grass mixture can be advantageous over a pure alfalfa stand when soil erosion and heaving are concerns. The grass will also reduce hay curing time and lengthen the life of the stand. As alfalfa thins out with time, the grass will become the predominant part of the mixture. Forage quality, however, is less when a grass is grown in association with the legume.

Orchardgrass is able to withstand the intensity of a four-cut system when grown with alfalfa, but timothy and smooth bromegrass are less likely to survive. Timothy, smooth bromegrass, and red canarygrass are classified as jointing grasses, while orchardgrass, tall fescue, and Kentucky bluegrass are classified as non-jointing grasses. Non-jointing grasses are able to withstand intensive cutting management because the tillers formed after heading do not elongate. The tillers of jointing grasses that form after heading do elongate. If jointing grasses are grazed or cut while elongating, the stand will be weakened because of low carbohydrate reserves and lack of new tiller buds from which new growth develops.

**Inoculation**

Alfalfa seed should be inoculated with a fresh alfalfa inoculant before seeding. The directions on the inoculant container should be followed. If the seed is pre-inoculated, the seed tag will contain the inoculant expiration date; if the date has expired, the seed should be reinoculated with a fresh inoculant. Inoculation is necessary to insure that N-fixation occurs.

**Seeding Date**

Alfalfa should be sown as early as possible in the spring or between August 1-15 for the northern half of Indiana or August 15-September 1 for the southern half of Indiana. Late seedings in the spring, after April 15, risk more competition from annual weeds. Later plantings than those recommended during the late summer can result in plants not having enough carbohydrates stored for winter survival. It has become apparent that late-summer seedings, particularly those in southern Indiana, risk greater injury the following spring from the disease sclerotinia crown and stem rot.

**Seeding Rate**

The proper seeding rate for a pure seeding of alfalfa is 12-15 pounds pure live seed per acre. If a grass is also being sown, alfalfa seeding rates can be reduced to 8-10 pounds pure live seed per acre. Pure live seeding rates for the grass in the mixture would be as follows: orchardgrass, 4-6 pounds; smooth bromegrass, 5-7 pounds; and timothy, 2-4 pounds. These seeding rates will result in an approximate 50:50 mixture. If more alfalfa is desired, the alfalfa seeding rate can be increased and the grass seeding rate reduced.

**Seeding Methods**

There are several acceptable ways that alfalfa can be sown. The seed can be banded, drilled, or broadcasted. Band seeders are becoming a rarity because they are no longer manufactured, although they are especially effective when the soil test level is low in phosphorus. Phosphorus is important for seedling establishment. Drills that are equipped with a small-seed legume box and cultipacker wheels provide an accepted planting method, although the soil should be firm before seeding. Drills that have chain drags and a small-seed legume box are suitable for seeding alfalfa if a cultipacker is used before and after seeding. Broadcasting alfalfa seed will also work adequately if the soil has been firm before a cultipacker before and after seeding. Broadcasting the seed in two different directions or by splitting the middle of the first pass with a fan spreader will reduce seed distribution problems. The Brillon seeder is an ideal implement for seeding forage crops since it firms the seedbed and allows the seeding of a grass-legume mixture from separately calibrated seed boxes. Regardless of seeding method used, the seed should not be sown greater than one-half inch deep.

**Weed Control at Establishment**

Eptam and Balan are two pre-plant incorporated herbicides that are used in Indiana for pure stands of spring sown alfalfa. These herbicides can do a good job of controlling annual grasses and some annual broadleaved weeds, and they are especially helpful in reducing weed problems if the seeding is delayed past mid-April. The herbicide 2,4-DB can be applied post-emergence for the control of most broadleaved weeds. It should be applied when the weeds are small and the alfalfa is beyond the third trifoliate leaf stage. For more detailed information, consult Extension publication ID-1, “Weeding with Chemicals.” Using a companion crop to reduce weed problems is still a very popular management procedure when spring seeding forage crops. Spring oats
are less competitive with newly seeded alfalfa than soft red winter wheat sown the previous fall. It is preferred that the companion crop be removed as green forage rather than as grain to reduce competition earlier in the season. If the small grain is harvested for grain, its seeding rate should be reduced at least 25 percent, N application shouldn’t exceed 60 pounds per acre, and a stiff-strawed variety should be selected. While some grain yield will be sacrificed, it is essential that these practices be followed if the alfalfa is to survive.

**Maintenance Fertilization**

Each ton of alfalfa hay will remove approximately 15 pounds P₂O₅ and and 60 pounds K₂O. For example, if a 6 ton per acre yield goal was achieved the first full year of production, 90 pounds P₂O₅ and 360 pounds K₂O per acre should be applied to maintain a similar soil test level as was found at seeding. It is suggested that half of the fertilizer should be applied after the first harvest and the second half be broadcast after the last harvest, usually early to mid-September. Potash is helpful in developing adequate winter hardiness for winter survival. Application should be completed within a week after harvest so new growth is not hurt by the spreading equipment. If soils are sandy, three equally divided fertilizer applications may be justified since cation exchange capacity of this soil texture is low.

Boron (B) is the most limiting micronutrient, particularly on sandy soils, unglaciated soils, and the oldest glacial soils in southern Indiana. A tissue test is essential to diagnose whether a B deficiency does or does not exist. If the tissue test indicates a deficiency, 2 pounds of actual B per acre should be applied annually with the other fertilizer. Boron deficiency symptoms, stunted plants and yellow terminal leaves, should not be confused with potato leafhopper damage, a major insect pest of alfalfa.

**Insect Control**

The most serious insect pest the past several years has been the potato leafhopper. Other pests to be aware of include the alfalfa weevil and meadow spittlebug. The weevil and spittlebug attack the first cutting of an established stand, while the leafhopper attacks the second, third, and fourth cuttings. Monitoring the crop for the insect population and knowing the economic threshold levels for each insect indicates whether chemical control is necessary. (For current information on their detection and control, see Extension publications E-28, “The Meadow Spittlebug”; E-36, “Potato Leathopper on Alfalfa”; and E-38, “Alfalfa Weevil,” available at all county Extension service offices.)

**Harvest Management**

A new clear seeding that was established in the early spring will generally be ready for harvest 70-90 days after seeding. The crop should be in early to mid-bloom before the first harvest of a new seeding occurs. Thereafter, the crop should be harvested every 28-35 days when in late bud or early flower. The time span will vary depending upon the environmental conditions.

An established stand should be initially cut in the spring when the crop is in the late bud or early flower maturity stage. If cut before this stage, carbohydrate reserve level will be inadequate for future growth; if cut later the forage quality will decline rapidly. The first harvest will generally occur by mid-May for the southernmost part of Indiana and late May for northern Indiana. If the crop is not beginning to flower in the spring as would be expected, check to see if new tillers are forming at the crown. If these tillers are forming, the crop should be safe to cut. Environmental conditions will often delay floral set in the early spring, but the crop may still be ready to harvest. An alfalfa or alfalfa-orchardgrass mixture can then be cut on a 28-35 day harvest schedule during the growing season. Alfalfa grown in association with timothy or smooth bromegrass will generally be on a six-week harvest schedule because they are jointing grasses.

Four to six weeks of time should be allowed between a late-summer harvest and the first killing frost. This permits the plant to develop a large carbohydrate root reserve, which promotes winter survivability and is the source of food needed to promote new growth the following spring. In general, northern Indiana should strive to have the last growing season harvest completed by early September, and southern Indiana should have the crop removed by mid-September.

An “after killing frost” harvest can be done after the vegetation is wilted by temperatures less than 24°F. Field curing is difficult this time of year because of lower temperatures and less day length. Greencropping, grazing, or ensiling the crop would be the best harvest choices. This crop should be cut to leave at least a 6 inch stubble rather than the usual 2-3 inch cutting height. This encourages snow cover, which provides insulation for the crop and reduces ice accumulation on the crown. There are risks with this late harvest when winter temperatures are harsh and snow cover doesn’t exist because the insulation effect has been lost.

Weather is one of the hardest factors to manage when harvesting forages and one of the strongest justifications for a silo. The crop can be ensiled at 65 percent moisture instead of being packaged as hay at less than 20 percent moisture. The greatest weather problems usually occur during the first
harvest, because the crop is “heavy” and rains are frequent. A week of showers and high humidity will cause almost total deterioration in a field of raked hay. Yields of later cuttings are reduced by the windrows of hay blocking out sunlight and by the damage due to the extra traffic required for reraking the hay. Even if the hay is standing, the quality of the crop and the quantity of future crops will decline in a domino effect due to the delayed harvest of the immediate crop. Reducing weather risk and/or speeding up the hay harvest process is critical to achieving high yields of superior quality hay.

Propionic acid based materials have proven effective in allowing hay to be safely baled at 25 percent moisture. Ten to twenty pounds of actual propionic acid must be applied to prevent heating and deterioration. The corrosive effects of the acid can be minimized with proper precautions.

Potassium carbonate (K₂CO₃) has been shown to be an effective dessicant. The compound decreases drying time between the time the crop is cut and ready for packaging. Application rates of 0.23 pound K₂CO₃ per gallon of water and 30 gallons of mixture applied per acre at cutting have reduced drying time in some cases by at least one day.

**Post-Establishment Weed Control**

A vigorously growing alfalfa crop is the best method of reducing weed problems in an established stand. This vigor is promoted by using the cultural practices previously discussed.

Winter annual weeds, in general, are the greatest problem across the state. The seeds germinate in the late fall and are a problem with the first harvest. Herbicides are available for winter annual weed control, and they do a good job if applied according to the label. (Refer to Extension publication ID-1, “Weeding with Chemicals,” for complete recommendations.)

**ECONOMIC CONSIDERATIONS**

Alfalfa is not a low cost enterprise. Estimates of the costs and net returns associated with the production of 3, 5, 6, and 8 tons of alfalfa per acre are presented in Tables 1 and 3. Total cost per acre for 8 ton production, excluding land cost, is more than $400 per acre. The data show that even though production costs per acre increase with higher yields, cost per ton declines because of the fixed nature of the costs associated with seeding, machinery ownership, and land rental. Table 2 indicates the cost of machinery investment and annual ownership costs required for producing alfalfa. These budgets were prepared with the aid of the Fast Agricultural Computer Terminal System (FACTS) available at each county Cooperative Extension Service office. The budget statements are helpful in predetermining the profitability of each cropping enterprise.

Although net returns per acre increase with higher yields and prices, a selling price of over $60 per ton and a yield of six tons per acre are required for a positive return to land. As prices increase, the break-even yield declines. Whatever the combination, these budgets indicate that large yields of high quality alfalfa, which are marketed at top prices, are required for alfalfa to be considered a feasible alternative crop. In addition, producers with combined forage-livestock operations must recognize the nature of the relationship between the two programs.

**Assigning Market Price**

Estimating the cost of production is quite simple in that specific yields require certain quantities of seed, fertilizer, chemicals, and machinery. More difficult is the task of assigning market price. Either prices from a local hay market can be used, or hay prices can be based on the price of substitute feeds which do have market prices, i.e., corn or soybean meal. Both methods have flaws, however.

First, very little hay is actually bought and sold. For this reason, the prices being reported may not be an accurate representation of the value of the hay. Also, the hay sold at auctions is usually in pick-up load lots (20-30 bales), and the quality is typically excellent. Thus, because of these quantity and quality differences, the producer with a barn full of hay, some of which has been rained on, has a difficult time relating auction prices to his marketing decisions.

Since the lifetime of an alfalfa seeding is generally 3 to 5 years, producers would like to have a price forecast for this time period. Hay prices, however, can fluctuate widely, and they are nearly impossible to predict a year in advance. As a case in point, alfalfa hay prices in Indiana have varied from $60 to $300 per ton in the past 2 years. It is therefore nearly impossible to predict accurately the revenue side of the alfalfa budget.

Basing alfalfa's value on corn and soybean meal has serious flaws. This practice ignores the different market characteristics of alfalfa hay vs. these concentrates, characteristics such as density, flowability, transportation costs, and alternative uses. The practice also tends to "double count" the feed value of the alfalfa: all of the alfalfa is used for energy evaluation and then all is used for protein evaluation. This leads to the two parts adding up to something greater than the whole. The practice may also put a higher value on the whole protein portion than is justified for some livestock producers. For instance, a herd of non-lactating beef cows requires little protein, and if the protein in a ration of alfalfa hay would only be partially used, why put a dollar value on it?
Table 1.
Costs of Producing Alfalfa for Specified Yields.

<table>
<thead>
<tr>
<th>Cost Item*</th>
<th>Hay Yield Per Acre (Tons)</th>
<th>Your Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td><strong>VARIABLE COSTS PER ACRE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Topdress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fertilizer</td>
<td>$31.95</td>
<td>$53.25</td>
</tr>
<tr>
<td>Lime stone</td>
<td>12.00</td>
<td>12.00</td>
</tr>
<tr>
<td>Seed</td>
<td>11.00</td>
<td>11.00</td>
</tr>
<tr>
<td>Herbicide</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>Insecticide</td>
<td>0.00</td>
<td>9.90</td>
</tr>
<tr>
<td>Machine Operation</td>
<td>18.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Interest</td>
<td>5.95</td>
<td>8.97</td>
</tr>
<tr>
<td><strong>TOTAL VARIABLE COSTS PER ACRE</strong></td>
<td>$81.90</td>
<td>$128.12</td>
</tr>
<tr>
<td><strong>FIXED COSTS PER ACRE</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machinery &amp; Equipment</td>
<td>$70.67</td>
<td>$70.67</td>
</tr>
<tr>
<td>Land Cost (Cash Rent)</td>
<td>80.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Labor</td>
<td>24.84</td>
<td>41.40</td>
</tr>
<tr>
<td>Storage Facility</td>
<td>22.50</td>
<td>37.50</td>
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<tr>
<td>Interest on Stored Commodity</td>
<td>13.65</td>
<td>22.75</td>
</tr>
<tr>
<td><strong>TOTAL FIXED COSTS PER ACRE</strong></td>
<td>$211.66</td>
<td>$272.32</td>
</tr>
<tr>
<td><strong>TOTAL COSTS/ACRE</strong></td>
<td>$293.56</td>
<td>$400.44</td>
</tr>
<tr>
<td><strong>TOTAL COSTS/TON</strong></td>
<td>$97.85</td>
<td>$80.09</td>
</tr>
</tbody>
</table>

*Topdress Fertilizer — Assumes a maintenance application of 15 lbs. of P2O5/ton (@ $0.23 per lb of actual P2O5), and 60 lbs of K2O/ton (@ $0.12 per lb of actual K2O). Seeding year fertilizer can be partially applied as a plowdown and as a starter fertilizer.

Limestone — Based on the application of 1 ton every year.

Seed — Prorated over the assumed four-year life of the alfalfa stand. A seeding rate of 12-15 pounds of pure live alfalfa seed/acre is assumed. In addition to the cost of seed, the prorated cost of seeding is also included.

Herbicides — Assumes a preplant incorporated herbicide (e.g., Eptam, Balan) is applied for a spring seeding but not needed for a late summer seeding. Cost is prorated over the life of the alfalfa stand.

Insecticides — Assumes one spraying for the alfalfa weevil and one spraying for potato leafhopper except at the 3 ton/acre yield level.

Machine Operation — Variable costs are fuel, lubrication, repair, and hauling to and from the field. Included are all growing and harvesting variable costs for machine operations not accounted for under other headings.

Interest — Based on interest on operating capital at 14 percent per year for 6 months.

Machinery & Equipment — Includes depreciation, interest on the machinery investment, taxes, insurance and shelter. These ownership costs are based on initial machinery investment and usage on 60 acres per year.

Land Cost (Cash Rent) — Approximates current cash rental rates. It assumes that the acre of cropland could be rented if not farmed by the owner. Part of this cost would typically include real estate tax cost and land maintenance cost. This figure is adjusted according to the quality of the cropland.

Labor — Assumes labor is family or owner/operator labor. All hired labor is accounted for as a variable cost.

Storage Facility — Based on 14 square feet per ton, investment cost of $3.50 per square foot for clear-span building, and annual ownership costs equal to 14 percent of new costs. Assumes a cost of $7.50 per ton per year.

Interest on Stored Commodity — Assumes a 14 percent interest rate for 6 months and is based on expected yield and price at harvest.

Table 2.
Investment and Annual Ownership Costs Required for Production of Alfalfa in Conventional Rectangular Bales.

<table>
<thead>
<tr>
<th>Item</th>
<th>Investment</th>
<th>Annual Cost*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mower-conditioner</td>
<td>$7,000</td>
<td>$1,400</td>
</tr>
<tr>
<td>Baler</td>
<td>7,500</td>
<td>1,500</td>
</tr>
<tr>
<td>2 Wagons</td>
<td>2,250</td>
<td>450</td>
</tr>
<tr>
<td>Rake</td>
<td>3,200</td>
<td>640</td>
</tr>
<tr>
<td>Elevator</td>
<td>1,250</td>
<td>250</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$21,200</td>
<td>$4,240</td>
</tr>
</tbody>
</table>

*Annual cost is based on accelerated cost recovery (depreciation) of 10 percent per year interest at 14 percent (7 percent on new cost); taxes at 1.5 percent, insurance at 0.5 percent, and shelter at 1 percent of the investment for a total of 20 percent of new cost per year.

Table 3.
Impact of Alfalfa Yields and Prices on Net Returns to Land. (Total cost per acre less land cost.)

<table>
<thead>
<tr>
<th>Alfalfa Price*</th>
<th>Yield Per Acre (Tons)</th>
<th>3</th>
<th>5</th>
<th>6**</th>
<th>8**</th>
</tr>
</thead>
<tbody>
<tr>
<td>$40.00</td>
<td>$40.00</td>
<td>-94</td>
<td>-100</td>
<td>-99</td>
<td>-95</td>
</tr>
<tr>
<td>$50.00</td>
<td>$50.00</td>
<td>-64</td>
<td>-50</td>
<td>-39</td>
<td>-15</td>
</tr>
<tr>
<td>$60.00</td>
<td>$60.00</td>
<td>-34</td>
<td>0</td>
<td>21</td>
<td>65</td>
</tr>
<tr>
<td>$70.00</td>
<td>$70.00</td>
<td>-4</td>
<td>50</td>
<td>81</td>
<td>145</td>
</tr>
<tr>
<td>$80.00</td>
<td>$80.00</td>
<td>26</td>
<td>100</td>
<td>141</td>
<td>225</td>
</tr>
<tr>
<td>$100.00</td>
<td>$100.00</td>
<td>86</td>
<td>200</td>
<td>261</td>
<td>385</td>
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<tr>
<td>$120.00</td>
<td>$120.00</td>
<td>146</td>
<td>300</td>
<td>381</td>
<td>545</td>
</tr>
</tbody>
</table>

*Net farm price. Does not include transportation costs to point of sale.

**High management requirements needed as these yields roughly equal to the management required to raise 140 and 200 bushels of corn per acre, respectively.
Another flaw in the procedure of using the nutrient value of corn to establish the value of alfalfa lies in the fact that a unit of digestible energy in corn is not equal to a unit of digestible energy found in forages. Due to the difference in the heat increment of digestion, there is not a one-to-one relationship. Moreover, the energy utilization of the forage is tied to the intended use by the consuming livestock; maintenance and milk production result in more efficient utilization of the energy found in forages. Therefore, using the energy value of corn to establish the value of alfalfa would result in an over-statement of the dollar value of the alfalfa.

There is, thus, no simple method of determining the value of alfalfa. A computerized least-cost ration model would provide the most accurate estimate based on the type of livestock being fed and the cost of alternative feeds.

**Forage and Livestock as a Single System**

On a livestock farm, the "value" of the alfalfa fed is tied to the efficiency and profitability of the livestock enterprise unless the producer uses a very strict set of enterprise budgets. With the exception of dairy, the cattle business has generally not been very profitable in the recent past. As a result, many producers have also believed that their alfalfa has not been economically worthwhile either.

Quite simply, the alfalfa is part of the forage-livestock system on each individual farm. Some producers have mastered this lesson, and the productivity or efficiency of the livestock enterprise plays an integral role in determining the value of the alfalfa hay being fed. Any one who produces 18,000 pounds of milk per cow or weans ninety-five 500-pound calves from 100 beef cows knows this. By recognizing this complex connection and managing their forage and livestock as one system, they are able to generate more net return to the farm.

**SUMMARY**

Alfalfa yields can be increased if producers adopt improved production practices. If these practices are not used, profitability of the alfalfa enterprise is unlikely. In economic terms, a selling price of over $60 per ton and a yield of 6 tons per acre are required for a positive return to land. An effective marketing program and/or an efficient livestock enterprise must be combined with a strong forage production system if full potential from the alfalfa crop is to be realized.
ALFALFA

High Quality Means Greater Profit

The goal of most dairymen and livestock producers is to generate greater profits. But, it is becoming increasingly more difficult to achieve this goal. Why? Because the cost of everything is increasing—the inputs you purchase, the grain you feed, the land you farm.

Producing and feeding HIGH QUALITY ALFALFA are means for increasing profits on your farm. This sounds like a simple solution but top management is required to produce 6 to 8 tons or more of high quality alfalfa year after year. A producer must plant quality seed of high yielding disease and insect resistant varieties, use recommended fertilizer and pest management programs, reduce field harvest losses and, most important, harvest at the right stage of maturity. Then back this up with a feedstuffs testing program to insure that livestock receive a balanced ration.

You can reduce your reliance on fluctuating priced purchased feeds and feed-grains by producing and feeding HIGH QUALITY ALFALFA. Most importantly, you can generate more profits per acre from your farm. And isn’t this your goal? If it is, there’s a place for HIGH QUALITY ALFALFA on your farm.

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