University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Historical Materials from University of Nebraska-Lincoln Extension

Extension

1972

EC72-195 Producing Alfalfa in Nebraska

W. R. Kehr

W. J. Moline

Follow this and additional works at: http://digitalcommons.unl.edu/extensionhist

Kehr, W. R. and Moline, W. J., "EC72-195 Producing Alfalfa in Nebraska" (1972). *Historical Materials from University of Nebraska-Lincoln Extension*. 4152.
http://digitalcommons.unl.edu/extensionhist/4152

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Historical Materials from University of Nebraska-Lincoln Extension by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

AGRI
S
85
E7
#72-195
c.1

E.C. 72-195

Producing **Alfalfa** in Nebraska

Extension Service
University of Nebraska-Lincoln College of Agriculture Cooperating with the
U. S. Department of Agriculture and the College of Home Economics
E. F. Frolik, Dean J. L. Adams, Director

Producing Alfalfa in NEBRASKA

W. R. Kehr and W. J. Moline[1]

Why Grow Alfalfa?

Alfalfa is important for soil improvement and livestock feed. It contributes nitrogen and organic matter to the soil, increases water infiltration rate and improves soil structure. Alfalfa grown in rotation or sequence with other crops can reduce damages from certain insects and diseases. Using crop rotations, in a broad sense, can be a component of pest control and management for environmental quality.

Alfalfa produces a high level of energy per acre and is the highest of all crops in protein per acre. Alfalfa yields at 3 tons/acre produce more protein per acre than exceptionally high yields of corn silage and corn grain (Table 1). For net energy production, alfalfa yields of 5 tons/acre are competitive with 100-bushel corn yields; and corn silage yields must exceed 17 to 18 tons/acre to produce more net energy than 7 tons/acre of alfalfa.

Table 1. A comparison of corn grain and corn silage yields needed to equal the feed produced by alfalfa cut at first flower. Wisconsin.

	Alfalfa dry matter—ton per acre[a]			
Crop	*3*	*5*	*7*	*9*
Net energy				
Corn silage—T/A[b]	7.5	12.5	17.5	22.5
Corn grain—bu/A[c]	62.5	104.5	146.5	188.5
Crude protein				
Corn silage—T/A	21.0	34.75	48.5	62.25
Corn grain—bu/A	215.5	360.0	504.5	649.0

NRC-NAS Pub. No. 4, Nutrient Requirements for Beef Cattle 1970
[a]Alfalfa-prebloom, crude protein—19.4%, TDN—63%
[b]Corn silage-mature and well-eared. Kernels 35% moisture
[c]No. 2 Corn grain

[1]Research Agronomist, Plant Science Research Division, Agricultural Research Service, U. S. Department of Agriculture, and Professor of Agronomy; Extension Agronomist (Forage Crops), University of Nebraska, Lincoln, Nebraska 68503.

Alfalfa as a forage feed contains generous amounts of protein, vitamins, amino acids, minerals and unknown growth factors. The American and world concern for using nonnaturally occurring chemicals in animal rations undoubtedly will increase the value and use of alfalfa in livestock rations. Higher alfalfa yields of ever higher quality than presently harvested can reduce production costs and increase profits in many livestock feeding operations.

Alfalfa growers need to use techniques of the 70's, not the 60's, 50's or 30's to reach maximum yield.

Status of Alfalfa Yields

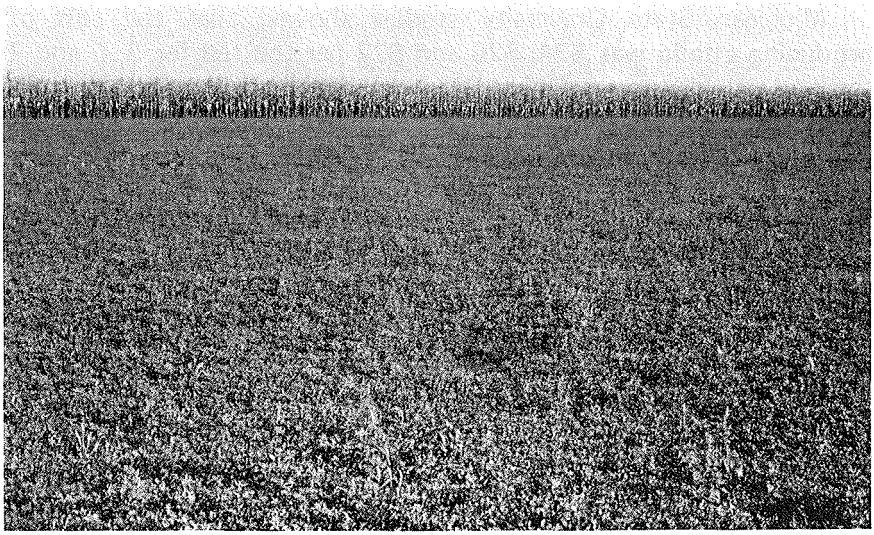
The best land is often used for producing corn, sorghum, soybeans and other "high value" per/acre crops. But do these "high value" per/acre crops give greater net dollar return per/acre than alfalfa? It seems reasonable to evaluate each crop as it contributes to the farm and ranch. On many farms and ranches, alfalfa is seeded on the poorest land and gets the least water, fertilizer and management. Other cultivated crops are irrigated and all other work is done before making hay. These and other limiting factors can be adjusted and changed.

You Can Make Money Growing Alfalfa

Alfalfa competes with other crops for net dollar return per acre for the livestock producer and landowner. The net return per acre for the cash farmer (non-livestock producer) takes only tons per acre into consideration and not the nutrient value compared to corn, sorghum, small grains, etc. The dollar value for soil improvement and crop rotation benefits from alfalfa is seldom, if ever, noted.

We need economic studies where alfalfa is given a chance to prove itself—where alfalfa is grown on the best land and given fertilizer, water and management comparable to the best competing crops. Survey data may be obtained with accuracy but this does not mean that these data accurately report maximum or comparable net returns per acre. Alfalfa hay yields in experiment station tests often are much greater than state yields.

For example, the Illinois state average is 3.2 tons/acre whereas the University of Illinois demonstrated that 8 to 10 tons/acre can be



Alfalfa can compete with other crops for net dollar return per acre.

produced. The average yield in Nebraska for 1971 was 3 tons/acre, where research plot averages of 5 to 9 tons have been produced. These station tests are on the best land available and alfalfa receives its needed share of fertilizer, water and management.

Cost of harvesting, hauling and storing hay is often quoted as being about half the price received for hay. Thus, in a $25/ton market, the uncut value in the field is about $12.50 and $20/ton hay is worth about $10 uncut. Based on a 1971 Iowa State University survey of costs and return figures for Iowa, 3.5 ton/acre alfalfa cost $27.71/ton to produce, compared with 99 cents a bushel for corn yielding 103 bushels/acre and $2.35 per bushel for soybeans yielding 33 bushels/acre. Agronomists may not agree that 103 bushel/acre corn land should produce only 3.5 ton/acre of alfalfa. Labor cost per acre was greatest for alfalfa ($24) compared with $12 for soybeans and $15 for corn.

An Ohio survey showed that the profit per acre was greater when hay was sold to dehydrating plants than when harvested as hay by the grower, although the difference in profit per acre was only 25 cents. The profit per acre was higher in a corn-soybeans-wheat-one year alfalfa rotation than in a rotation which included alfalfa for 3 years, corn and wheat. Alfalfa yields were 3.5 ton/acre.

Michigan State University studies showed that the cost of producing alfalfa was $34, $26 and $22 per ton fed for 3, 5 and 7 ton/acre yields, respectively. Oklahoma production costs per ton varied from $18 to $20. Nebraska costs range from $18 to $27 and California costs from $30 to $34 in the central San Joaquin Valley.

In all economic studies, the assumptions and inputs such as charges for land, labor, capital, etc., vary so comparisons between studies may or may not be valid. The greatest returns per acre have been received by the producer who uses his crops in an efficient livestock enterprise.

Income from alfalfa is more stable than that from other crops. Alfalfa tolerates drought, producing as long as subsoil moisture is available in addition to rainfall. The wide year-to-year yield fluctuations that occur in annual crops are not common with alfalfa.

Where Will Alfalfa Acreage Increase?

Alfalfa acreage will increase first where livestock enterprises are established. There is talk about raising cattle on land that formerly produced small grains. Government programs enter into land usage as farmers do not want to lose their feed-grain base.

What Limits Your Alfalfa Yield?

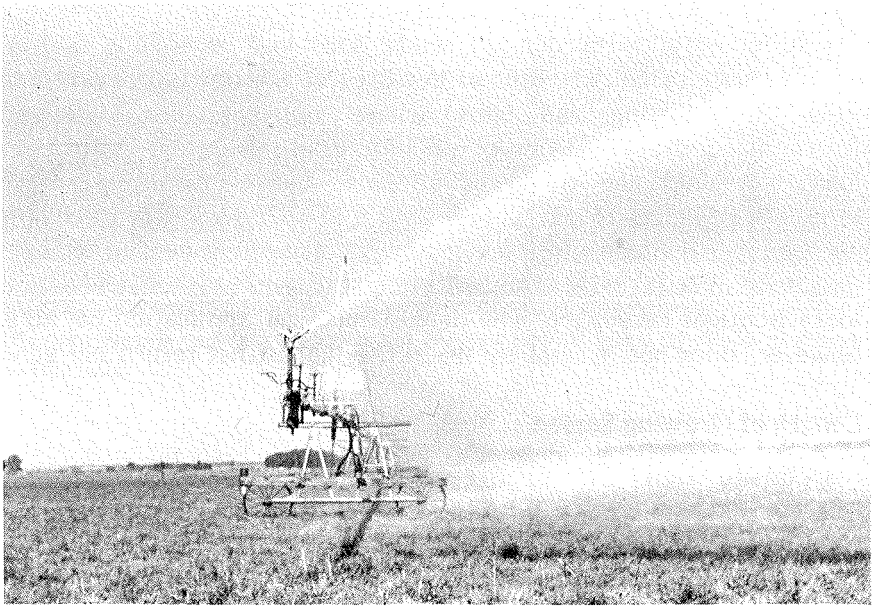
A number of factors may limit alfalfa yield. These are not listed in order of importance since ranking of factors varies. They are not independent of each other and they may interact.

Water

The amount of water needed to produce a ton of alfalfa hay varies with climate. A figure often quoted is that 6 to 10 inches of total water are needed per ton of dry matter. Nebraska Experiment Station information from Scotts Bluff shows this to be close to 5.25 inches per ton of hay. Water use efficiency is greatest on fertile soils. Excessive amounts of water can be a limiting factor. Alfalfa can't tolerate wet feet. Water table depths that seriously damage alfalfa may occur in various soil types. In general, serious damage may occur when water levels are at depths of 3 to 4 feet or less.

Irrigation makes it possible to grow alfalfa on a wide variety of

soils. If irrigation water is not available for timely irrigation of alfalfa during the growing season, late fall or early spring irrigation can fill the soil profile (except sandy soils) with water for summer use by alfalfa while summer irrigation water is applied to shallower-rooted crops.



Irrigation makes it possible to grow alfalfa on a wide variety of soils.

Drainage

Poorly-drained land warms up late in the spring, thus reducing the number of cuttings and growing season. Micronutrient deficiency symptoms are seen on poorly-drained land more frequently than on well-drained land. Heaving may be a problem on poorly-drained heavy soils. Saline or alkali conditions, or both, are often associated with poor drainage.

Fertilizer

The optimum soil pH is in the range of 6.3 to 7.3 for many soils. Soils should be tested by a reputable laboratory where corrective

fertilizer is recommended for application. Low pH values can be corrected with lime. Phosphate most often limits production. Well-nodulated plants can supply most of the nitrogen requirement. A starter fertilizer with nitrogen may be beneficial for seedling establishment under certain low-nitrogen conditions. Late applications of nitrogen have not been beneficial except in alfalfa-grass plantings. Alfalfa is an effective deep subsoil feeder.

Sulfur may be needed on sandy soils low in organic matter. Boron may also be deficient on low organic matter, coarse-textured soils. Soil testing can spot where nutrients are deficient. Recommended applications of calcium, phosphorus and sulfur have increased yield and quality. Potassium levels are important in longevity of stands. Fortunately, Nebraska soils are high in available potassium. Adequate phosphorus and potassium are needed for cold resistance. Fertilizer requirements increase with higher yields and more frequent harvesting. The highest fertilizer application per acre, however, does not necessarily mean the highest net return per acre.

Length of Growing Season

Climate limits the number of cuttings per year and the time interval between cuttings. Flowering time varies some between varieties and is influenced by temperature, water, fertilizer, insects and other factors. We generally harvest 3 or 4 alfalfa cuttings in Nebraska and frequently graze the residue in November and December.

Diseases and Insects

Diseases cause an annual estimated 24% loss to hay production in the US. That is about a $400 million loss calculated at $22 per ton. Bacterial wilt, crown and root rots and virus diseases each cause 5% of the loss; foliar diseases cause 9%. All of these diseases occur in Nebraska. Economic losses from nematodes have not been found in Nebraska.

Insects cause an annual estimated loss of 15% to hay production in the US, valued at $244 million. Spotted alfalfa aphid, potato leafhopper, alfalfa weevil and pea aphid—all of potential economic importance in Nebraska—account for 13% of this loss.

The best way to control diseases, insects and nematodes is to use resistant varieties. Resistant varieties offer insurance against damage

Planting disease resistant varieties can prevent serious losses of alfalfa as shown in this field.

to establishment, forage and seed yield, forage and seed quality and persistence. They reduce potential air, soil and water pollution, and residues in milk, meat and other food from the use of pesticides. Present levels of resistance to certain insects, the alfalfa weevil for example, may not be adequate for control under severe infestations. Thus integrated control methods must be used which include insecticides, management practices and biological control through parasites and predators.

The eastern form of the alfalfa weevil is continuing to move westward and from south to north. Only one southeastern Nebraska county (Richardson) was infested in 1970. In 1971, 22 other southeastern, eastern and south central counties were added to the list.

Variety

The most persistent varieties with the highest levels of resistance to insects, diseases and nematodes should be grown. Varieties are available with relatively high levels of resistance to bacterial wilt, common leafspot and rust. Experimental populations with high levels of resistance to Phytophthora root rot or anthracnose were

developed recently and this resistance will be available in future varieties. Varieties are available with resistance to spotted alfalfa aphid, pea aphid, potato leafhopper, alfalfa weevil and spittle bug. Combined resistance to one or more insects and diseases is also available in some varieties.

The newer resistant varieties are the products of sustained breeding efforts and represent progress in attaining higher yields when insects and diseases, to which they are resistant, become limiting factors in production. Aphid resistant varieties are superior in quality to aphid susceptible varieties in light to severe infestations. The value of spotted alfalfa and pea aphid resistance in stand establishment under infestations has been demonstrated many times. Aphid resistant varieties are also superior in longevity of stand to aphid susceptible varieties under infestation. Protein and carotene contents of potato leafhopper resistant alfalfa were higher than that of susceptible alfalfa.

Dawson and Kanza, developed and released cooperatively by the U.S.D.A. in cooperation with the Nebraska and Kansas stations, respectively, have resistance to spotted alfalfa and pea aphids and bacterial wilt. Dawson is adapted to the entire state, whereas Kanza is less winterhardy than Dawson and adapted to the southern half of Nebraska. The advantages of Dawson over Ranger and Vernal in the presence of aphids is given in Table 2. In the absence of detrimental levels of these insects, the hay yield and quality of Dawson is similar to or slightly better than that of Ranger and Vernal.

Many other good improved varieties are available. Preliminary results indicate no yield advantage of presently available hybrids over adapted varieties developed by other methods. It is too early to know if the hybrid approach, using superior disease and insect resistant materials, will be superior to conventional breeding methods. Alfalfa variety tests are conducted at 4 to 5 locations in Nebraska. Tests include varieties which are being sold in volume in the state. Variety test results are published in Outstate Testing Circulars, Extension pamphlets and interim mimeographed reports available from County Agents. A list of certified crop varieties, published every year, is also available from County Agents.

Table 2. Hay yields and chemical composition of 3 alfalfa varieties grown under field cages infested with pea aphids or spotted alfalfa aphids in Nebraska.[a]

Variety	*Hay lb/A*	*Crude protein %*	*Carotene Mg/lb*	*Digestible dry matter %*	*Crude fiber %*
		THIRD CUTTING—1967			
		Pea Aphid—Medium Infestation			
Dawson	990	22.4	108	62.1	24.0
Ranger	764	23.0	86	59.9	23.8
Vernal	640	22.2	74	56.4	26.1
		Spotted Alfalfa Aphid—Medium Infestation			
Dawson	1122	23.1	114	61.1	25.2
Ranger	1040	21.1	84	58.4	26.9
Vernal	743	19.7	66	53.1	31.0
		SECOND CUTTING—1968			
		Pea Aphid—Light Infestation			
Dawson	2998	17.8	120	57.8	33.8
Ranger	2202	18.4	72	58.1	30.4
Vernal	1826	18.1	62	59.6	30.7
		Spotted Alfalfa Aphid—Light Infestation			
Dawson	3003	17.0	74	57.7	36.2
Ranger	2442	17.0	81	57.7	34.1
Vernal	2045	16.6	80	55.9	34.2

[a]Seeded: April 21, 1967.

From Nebr. Farm, Ranch and Home Quarterly, Summer, 1970

Weeds

Information on dollar losses from weeds in alfalfa is not available. The most common problem is weed control in spring seedings where alfalfa is seeded alone. Weed seedlings in the "white" or other early stages of growth are easily killed in seedbed preparation. Preplant incorporation of selective chemicals gives effective weed control and leads to yields of 3 to 5 tons/acre of hay from three cuttings in the year of seeding over much of the principal alfalfa growing areas of the US.

Postemergence selective chemicals are also available which control weedy grasses and broad-leaved weeds. A guide for chemicals that control weeds is published every year and is available from County Agents. Precautions on rate and method of application and residues must be followed. If chemical weed control is not used on a spring seeding, alfalfa should be cut at early bloom if there is no weed problem, or slightly earlier if weeds become competitive to the alfalfa. The forage and weeds can be chopped and blown back on the field if the hay is not removed.

A companion crop (formerly called nurse crop) such as oats may be used if wind or rain erosion is a hazard. Preplant chemicals cannot be used in this system. Companion crops compete with alfalfa for moisture, nutrition and light. If a companion crop is used, the field should be cut when the companion crop is at an early stage of maturity rather than when ripe. Mowing should be at the regular height. The lowest alfalfa yields were obtained in the year of seeding from using oats as a companion crop, compared with alfalfa alone, and alfalfa with preplant and postemergence chemicals (Tables 3 and 4). Fall seedings have fewer weed problems than spring seedings.

When weeds become a problem in thin stands, it is best to establish new seedings. There are chemicals that will control many of these troublesome weeds. Overseeding thin stands of alfalfa with alfalfa fails far more often than it succeeds in thickening stands.

Seeding

Prepare a firm seedbed. A firm seedbed is one on which you can drive with a seeder and not sink in more than a couple of inches. Many stands fail due to poor seedbed preparation. Use seed of high quality, germination and purity. Inoculate the seed or use

Table 3. Average total season yields (tons/acre) in the year of seeding, Nebraska.

Establishment treatment	*Rate lb/acre*	*Seeding rate, lb/acre*				
		3	*9*	*15*	*21*	*Av.*
				Ton/acre		
EPTC (Eptam)	1.5	.86	1.22	1.31	1.30	1.19
EPTC (Eptam)	3.0	.89	1.33	1.32	1.26	1.21
Benefin (Balan)	1	1.01	1.26	1.47	1.55	1.32
Benefin (Balan)	1.5	1.56	1.44	1.45	1.60	1.41
2-4-DB + Dalapon	1+2	.59	.93	1.18	.97	.92
Oats	32	.57	.80	.75	.87	.75
Check	-	.73	1.03	1.16	1.20	1.00
Average	-	.84	1.15	1.24	1.25	1.11

Table 4. Average total season yields in the year of seeding plus the first harvest year, Nebraska.

Establishment treatment	*Rate lb/acre*	*Seeding rate, lb/acre*				
		3	*9*	*15*	*21*	*Av.*
				Ton/acre		
EPTC (Eptam)	1.5	4.95	5.62	5.78	5.69	5.51
EPTC (Eptam)	3.0	4.84	5.69	6.12	5.66	5.58
Benefin (Balan)	1.1	5.08	5.64	5.95	6.04	5.68
Benefin (Balan)	1.5	5.22	6.09	5.90	5.97	5.79
2-4-DB + Dalapon	1+2	4.69	5.20	5.93	5.21	5.26
Oats	32	4.48	5.19	5.16	4.90	4.93
Check	-	4.88	5.44	5.75	5.27	5.33
Average	-	4.88	5.55	5.80	5.53	5.44

pre-inoculated seed. Seeding rates vary but 10 to 15 pounds/acre is usually adequate. A pound of seed contains about 220,000 seeds, thus a seeding rate of 1 pound/acre would be 5 seeds per square foot.

Higher yields are usually obtained in the year of seeding from the higher seeding rates but yields after the year of seeding tend to be about the same for the range of seeding rates of 10 to 15 pounds/acre. Seeding with a grass/legume drill or roller-type seeder

usually gives better stands than broadcasting. Band seeding is a variation of drilling in which fertilizer is placed below the seed with an inch or two of soil separating the fertilizer and seed. A planting depth of up to ½ inch on medium to heavy textured soils and up to 1 inch on lighter soils is recommended.

Cutting Management

Cutting at the right time is necessary for maximum yields. Dry matter yields normally increase until about half bloom, then decline. Quality is the highest in young growth and declines as maturity increases. Generally, leaf diseases and insect damage, as well as natural loss of leaves, increase with maturity. Thus, judgment is needed on the optimum time to cut, as dry matter yield will be sacrificed at the expense of quality. A compromise is made between maximum yield and maximum quality so that acceptable levels of both are attained.

Cuttings can't be made by calendar date but can be made according to growth stage. Amount of flower buds and bloom are used as a guide. Alfalfa may not bloom under unusual conditions such as moisture stress or excess, or prevalence of insects that prevent bloom or destroy buds. In the absence of bloom, alfalfa fields must be examined at the ground level to determine if regrowth (growth of the next cutting) is occurring from the crown and roots or axils of leaves. Regrowth usually occurs when, or shortly after, alfalfa is at 10% bloom, or its equivalent in the absence of bloom.

Time interval between cuttings after the first cutting is influenced by temperature, moisture, soil fertility, insects, variety and other factors. Alfalfa is a perennial that stores food in its roots. Initial growth in the spring and after each cutting is made at the expense of stored food reserves. As regrowth continues, leaves function to produce food which is stored in roots. It takes about 3 weeks of growth to restore the reserve and another 7 to 10 days to add surplus food in the roots so the plant is ready for another cutting. Thus, under optimum conditions, the minimum time interval between cuttings is about 30 days. Stands of all varieties were depleted before the end of the first growing season when cut at 25-day intervals in Pennsylvania.

Maximum yields of acceptable quality are generally obtained by taking the first cutting in the late bud or 1/10 bloom stage, followed by other cuttings, also at the 1/10 bloom stage. Most recent Nebraska data, obtained at the Mead station under nonirrigated conditions, are reported in Table 5. Stands in the fourth year of production were the same for all management systems.

"Flemish" and Flemish-type varieties bloom somewhat earlier, usually 5 to 7 days, than more winterhardy varieties and can be cut at 30- to 35-day intervals. The more winterhardy varieties can be cut at 30- to 35-day intervals without detrimental effects to persistence. However, 35- to 40-day intervals will bring maximum yields from the most winterhardy varieties.

The Flemish and Flemish-type varieties start to grow faster after cutting than more winterhardy typs. Faster rate of recovery after cutting does not assure higher yields. If the Flemish and Flemish-type varieties are compared with more winterhardy types in the same variety test, in which all entries are cut the same day, a short cutting interval will favor the Flemish types for yield.

It is impossible to cut all fields at the 1/10 bloom stage when large acreages are farmed. Cutting schedules should be established. Fields cut earlier than the bud stage in the first cutting can be cut at a later stage in other cuttings. Fields cut at a late stage in the first cutting can be cut at earlier stages in later cuttings. Cutting date should be recorded on all fields.

Cut alfalfa at ground level, usually a stubble height of 3 inches. In a recent Nebraska study at the Mead Station under non-irrigated conditions, average annual yields of dry matter, protein, carotene and digestible dry matter decreased as cutting height increased from 3 to 9 inches (Table 6). Maximum yields of dry matter, protein, carotene and digestible dry matter were obtained at the 3-inch cutting height.

Fall management is critical. Allow a month's growth after the last cutting in the fall before the first killing frost to accumulate food reserves in the root system for next year's growth. This may not be practical on all fields, on large acreages or where a continuous supply of forage is needed until frost, such as in the dehydration industry. Fields cut from about mid-September to the first hard frost should be cut in a late stage of growth in the first cutting the following year. Fields which had a month's fall growth before frost one year can be

Table 5. Three-year average total season chemical contents and production for stage of maturity management systems in Nebraska.

Constituent	Unit	Management system[a]				
		A	B	C	D	E
Number of cuttings		5	5	4.3	4.0	3.7
Dry matter yield[b]	lb./A	7845	8355	8777	8640	8700
Protein content	%	21.7	21.3	20.5	19.6	18.4
Protein yield	lb./A	1700	1782	1803	1695	1602
Carotene content	mg./lb.	98	101	99	84	74
Carotene yield	g./A	768	839	869	735	649
Fiber content	%	26.4	26.2	28.4	30.2	32.3
Fiber yield	lb./A	2072	2191	2485	2608	2810
DMD[c] content	%	66.6	67.2	65.0	63.5	61.8
DMD[c] yield	lb./A	5226	5616	5715	5486	5374

[a]Management systems: A = first cutting at 10 inch height, other cuttings at 1/10 bloom. B = all cuttings at bud. C = all cuttings at 1/10 bloom. D = first cutting at full bloom, other cuttings at 1/10 bloom. E = all cuttings at full bloom.

[b]All data are reported on a dry weight basis.

[c]DMD = dry matter digestibility.

From Proc. Tenth Tech. Alf. Conf. 1968

cut at an early stage in the first cutting the next year. A late harvest can be obtained during late October or early November if field conditions permit and growth is sufficient for a profitable crop. A stubble of 6 inches is often desirable to catch and hold protective snow which can prevent winter injury from exposure and ice sheet formation.

Table 6. Two-year average total season chemical contents and production for height-of-cut management systems in Nebraska.

		Management			
		Stubble height in inches			
Constituent	*Unit*	*3*	*5*	*7*	*9*
Dry matter yield[a]	lb./A	9945	8760	7899	6746
Protein content	%	18.9	19.0	19.3	19.7
Protein yield	lb./A	1879	1671	1524	1329
Carotene content	mg./lb.	74	76	76	81
Carotene yield	g./A	739	660	597	545
Fiber content	%	30.9	31.1	30.1	29.5
Fiber yield	lb./A	3070	2726	2378	1990
DMD[b] content	%	62.2	61.9	61.5	62.2
DMD[b] yield	lb./A	6190	5422	4858	4198

[a]All data are reported on a dry weight basis.

[b]DMD = dry matter digestibility.

From Proc. Tenth Tech. Alf. Conf. 1968

Preserving Quality

Mechanize hay making with the best system for your farm or ranch. Process rapidly to keep leaves. Leaves contain about 75% of the protein and 90% of the carotene (provitamin A) contents of the entire plant.

Watch the five-day weather forecasts. Rain causes leaching of nutrients. Stack hay at about 20% moisture. Bale hay at 20 to 25% moisture. Allow hay to wilt to about 60 to 70% moisture before making silage or 40 to 60% moisture for haylage. Feed green chop as soon as possible after chopping. Crimping or crushing hay hastens drying.

The best process of preserving nutritive value is through dehydration normally done commercially. Drying right after chopping, adding an anti-oxidant during processing, and storing of pellets under inert gas assures maximum retention of quality. Nebraska annually produces about 45% of the US production of dehydrated alfalfa meal. Alfalfa meal, well known as "Dehy," is a basic ingredient and insurance factor in rations for nearly all classes of livestock.

Summary

The demand for alfalfa will increase for all types of livestock. Producing maximum yields of high quality alfalfa with high net returns per acre takes top management