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Alternatives For Veterinary Medicine In Nebraska

Extension work in "Agriculture, Home Economics and subjects relating thereto," The Cooperative Extension Service, Institute of Agriculture and Natural Resources, University of Nebraska-Lincoln, Cooperating with the Counties and the U. S. Department of Agriculture
J. L. Adams, Director

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Issued August 1974, 3,000

ALTERNATIVES FOR VETERINARY MEDICINE IN NEBRASKA

The University of Nebraska has a strong and widely recognized Department of Veterinary Science which conducts research, teaching, and educational extension programs. It does not, however, have a College of Veterinary Medicine offering the Doctor of Veterinary Medicine degree.

Some Nebraska citizens, including members of the veterinary profession, have suggested that the University should have a College of Veterinary Medicine to accommodate students who want such an education and to provide more veterinarians for the State.

In this circular facts are presented which Nebraska citizens can use in forming their opinions about the feasibility of establishing a College of Veterinary Medicine within the University of Nebraska-Lincoln or other alternatives for veterinary education.

THE VETERINARY PROFESSION

What Is Veterinary Medicine?

Veterinary medicine is the profession that applies principles of the biomedical sciences to health and disease in animals, contributes to many areas of human need through research, and has an important direct relationship to human health. The basic concern is the protection and improvement of the health and economic welfare of the nation.

What Are the Educational Requirements of a Veterinarian?

A minimum of two to three years of college training in a pre-veterinary curriculum (mathematics, chemistry, zoology, physics) are required before making application to a college of veterinary medicine. These requirements can be obtained at any college offering biological sciences. Recently, many who have been accepted have had more than the minimum requirements. In 1974 students admitted to Minnesota's College of Veterinary Medicine, which requires at

least two years of pre-veterinary study, had an average of 3.75 years of college training.

In the four-year professional curriculum, required courses include anatomy, histology, microbiology, physiology, pharmacology, pathology, parasitology, public health, radiology, infectious diseases, clinical medicine, immunology, avian diseases, surgery, laboratory animal medicine, and clinical pathology. In most colleges at least two years are spent in applied training at college clinics.

The professional curricula of existing colleges are essentially the same and must meet the requirements of the Accreditation Committee of the Council of Education of the American Veterinary Medical Association. Many colleges of veterinary medicine offer Master of Science and Doctor of Philosophy degrees in specialties such as pathology, physiology and microbiology.

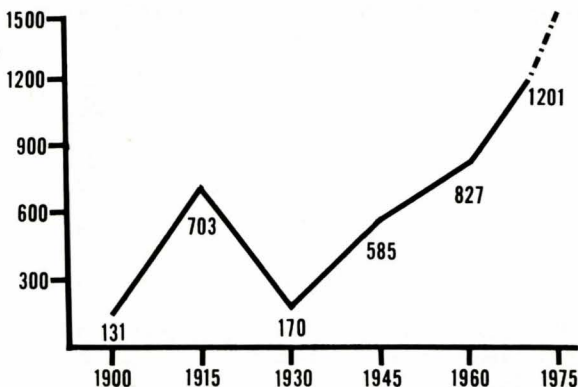
Each veterinarian practicing in Nebraska is required to attend 16 hours of continuing education courses each year to renew his license.

In What Areas of Work Are Veterinarians Engaged?

New Horizons for Veterinary Medicine, National Academy of Sciences, 1972, lists:

Food animal practice	6,242
(including 400 in poultry)	
Small animal practice	10,931
Equine practice	804
Laboratory animal medicine	342
Zoos	40
Wildlife	14
Public health	276
Meat inspection	1,885
Military	770
Regulatory	1,226
Teaching and research	1,611
Industrial veterinarians	506
Retired	777
Other	477

Veterinarians are responsible for health and care of animals used in biomedical teaching and research programs. Some veterinarians specializing in laboratory animal medicine are responsible for the care of animals in colleges of medicine, veterinary medicine, and dentistry, as well as hospitals, industrial laboratories, govern-



Annual total of graduates from U.S. Colleges of Veterinary Medicine (1900–1970). (Adapted from *New Horizons for Veterinary Medicine*, 1972. National Academy of Sciences, Washington, D.C.).

ment health agencies, military research and development units, feed and food manufacturing firms, animal production enterprises, universities, and publicly and privately supported research centers.

Many veterinarians will be required for the professional staffs of the new veterinary colleges being developed.

How Many Veterinarians Are Graduated Annually in the U.S.?

The chart above illustrates the historical annual total of veterinary medical graduates.

NEBRASKA'S NEED FOR VETERINARIANS

How Many Veterinarians Are in Nebraska?

There are 433 veterinarians in the State.*

261—mixed practice (large and small animals)

49—small animal practice

17—education, teaching, or research

35—regulatory work

19—industrial/biological work

36—military, public health, or other work

16—retired

*American Veterinary Medical Directory, 1974.

From Which Institutions Did Nebraska Veterinarians Graduate?*

Kansas State University	166
Colorado State University	101
Iowa State University	79
University of Missouri	14
Oklahoma State University	13
Kansas City Veterinary College	10
University of Minnesota	7
Washington State University	4
Ohio State University	4
Michigan State University	4
Texas A & M	3
Auburn University, Alabama	3
New York State Veterinary College	3
St. Joseph Veterinary College	3
Tuskegee University, Alabama	2
Ontario Veterinary College	2
University of Georgia	2
University of Illinois	2
Chicago Veterinary College	1
University of California, Davis	1
Not available	3
Foreign universities	6
Total	433

* (Includes retired or inactive veterinarians)

How Many Veterinarians in Various Age Brackets Now Work in Nebraska?

Data on the age of all Nebraska veterinarians are not available. The following data give the age brackets of veterinarians licensed to practice in Nebraska:

<u>Age</u>	<u>Number</u>
24-29	62
30-34	43
35-39	55
40-44	63
45-49	61
50-54	53
55-59	23
60-64	15
	<u>375</u>
65-69	7
70-74	4
75-79	5
80-84	0
85-89	2
90-94	1
	<u>19</u>
Total	394

The average age of Nebraska veterinarians under 65 is 41.

What Is the Annual Turnover of Veterinarians in Nebraska?

Approximately 25—therefore, we need 20 to 30 new veterinarians each year to stay even.

What Percentage of Nebraskans Trained in Veterinary Colleges Return to Nebraska?

Since 1959, 40 percent of those students supported under the University's reciprocal agreements (explained on page 10) have returned to Nebraska. Of those returning, 75 percent are engaged in large animal practice, 13 percent in small animal practice, and 12 percent in other activities.

How Does Nebraska Compare with Other Midwestern States in the Ratio of Large Animal Veterinary Practitioners to Livestock Numbers?

There are more livestock units per large animal practitioner in Nebraska than in either Iowa or Kansas.

When livestock numbers are converted to Veterinary Livestock Units (VLU) and large animal practitioners are designated as Veterinary Livestock Service Units (VLSU), the results for Iowa, Kansas, and Nebraska are (for 1972):

<u>State</u>	<u>VLU</u>	<u>VLSU</u>	<u>VLU per VLSU</u>
Iowa	1,772,658	÷ 449 =	3948
Kansas	690,838	÷ 190 =	3634
Nebraska	832,691	÷ 188 =	4429

According to the above table Nebraska has 11.5 percent more livestock units per veterinarian than the average of Iowa and Kansas. Using the VLU per VLSU ratio of Iowa and Kansas as a guideline, an additional 28 large animal practitioners would be needed for Nebraska to equal the service of Iowa and Kansas.

NOTE: Veterinary Livestock Units and Veterinary Livestock Service Units were calculated by using the tables on the next page.

Veterinary Livestock Unit (VLU)
by Class of Livestock

No.	Class		VLU
1	Dairy Cattle	=	1
10	Beef Cattle	=	1
6	Feeder Cattle	=	1
20	Swine	=	1
500	Poultry	=	1
20	Sheep	=	1

Veterinary Livestock Service Units (VLSU)
by Type of Practice

Practice	VLSU
Mixed Practice (50-50 large/small)	.5
Mixed Practice (+50% large)	.75
Mixed Practice (+50% small)	.25
Large Animal Practice	1.0
Bovine Practice	1.0
Porcine Practice	1.0
Poultry Practice	1.0
All other	0

How Do Range Area Practitioners Conserve Their Time?

Where distance between calls is a problem, large animal practitioners commonly establish large animal clinics with several veterinarians on the staff. Ranchers are encouraged to bring their animals to the clinics for treatment. This procedure allows the veterinarians to spend more time in professional activities and less time traveling.

What Is the Distribution of U.S. Veterinarians by State and Population?

Number of veterinarians per state and number per 100,000 of human population 1971.

State	Population	No. DVM's	Per 100,000 Population
1. California	19,953,134	2533	12.7
2. New York	18,190,740	1561	8.6
3. Pennsylvania	11,793,909	1024	8.7
4. Texas	11,196,730	1596	14.2
5. Illinois	11,113,976	1342	12.1
6. Ohio	10,652,017	1236	11.6
7. Michigan	8,875,083	984	11.1
8. New Jersey	7,168,164	566	7.9
9. Florida	6,789,443	835	12.2
10. Massachusetts	5,689,170	378	6.6
11. Indiana	5,193,669	812	15.6
12. North Carolina	5,082,059	399	7.8

13.	Missouri	4,677,399	778	16.6
14.	Virginia	4,648,494	561	12.1
15.	Georgia	4,589,575	606	13.2
16.	Wisconsin	4,417,933	699	15.1
17.	Tennessee	3,924,164	342	8.7
18.	Maryland	3,922,399	640	16.3
19.	Minnesota	3,805,069	782	20.6
20.	Louisiana	3,643,180	304	8.3
21.	Alabama	3,444,165	453	13.2
22.	Washington	3,409,169	605	17.7
23.	Kentucky	3,219,311	348	10.8
24.	Connecticut	3,032,217	251	8.3
25.	Iowa	2,825,041	1213	42.9
26.	South Carolina	2,590,516	202	7.8
27.	Oklahoma	2,559,253	417	16.3
28.	Kansas	2,249,071	618	27.5
29.	Mississippi	2,216,912	215	9.7
30.	Colorado	2,207,259	588	26.6
31.	Oregon	2,091,385	317	15.2
32.	Arkansas	1,923,295	208	10.8
33.	Arizona	1,772,482	236	13.3
34.	West Virginia	1,744,237	90	5.2
35.	Nebraska	1,483,791	457	30.8
36.	Utah	1,059,273	123	11.6
37.	New Mexico	1,016,000	138	13.6
38.	Maine	993,663	92	9.2
39.	Rhode Island	949,723	44	4.6
40.	Hawaii	769,913	59	7.7
41.	New Hampshire	737,681	86	11.6
42.	Idaho	713,008	166	23.3
43.	Montana	694,409	181	26.1
44.	South Dakota	666,257	207	31.1
45.	North Dakota	617,761	103	16.7
46.	Delaware	548,104	79	14.4
47.	Nevada	488,738	80	16.4
48.	Vermont	444,732	91	20.5
49.	Wyoming	332,416	87	26.2
50.	Alaska	302,173	21	6.9

SOURCE: Veterinary Medical Needs in Florida

What Is the Projected Need for Veterinarians?

Currently there are an estimated 29,000 veterinarians in the U.S. According to the National Academy of Sciences' report, 1972, the number of veterinarians will need to be increased to 42,000 by 1980.

If We Were Able to Graduate Veterinarians in Nebraska, Would They Set up Large Animal Practices in the Areas Where They Are Needed? If Not, Why?

Graduates of veterinary colleges, as with any other group entering the work force, look for

opportunities for gainful employment which best promise to satisfy their desires as to level of income, place of residence, and type of work.

Possible reasons why livestock producers in certain rural areas in Nebraska have not had access to adequate veterinary service are:

1. Areas of sparse populations of livestock and people which will not support many veterinarians.

2. Reluctance of some veterinarians or their wives to live in small towns.

3. The arduousness of practice in a sparsely populated area with poor roads.

4. Lack of knowledge of the opportunities.

The four reasons for reduced number of veterinarians are somewhat balanced when group practices are established which offer opportunities for consultation, specialization and time off. This may overcome some of the objections and encourage young veterinarians to practice in rural areas.

PRESENT OPPORTUNITIES FOR VETERINARY TRAINING FOR NEBRASKANS

Can Nebraskans Get Help at Colleges Outside Nebraska?

Yes, the University of Nebraska has contracts with the State Universities of Iowa, Kansas, Oklahoma, and Colorado, and a memorandum of understanding with the University of Missouri. Contracts provide non-resident tuition and Nebraska students pay only resident tuition.

<u>University</u>	<u>Minimum student quota</u>	<u>Payment by Nebraska</u>	<u>Date present contract expires</u>
Iowa State	6	\$6,500	1/1/76
Oklahoma State	2	7,340	7/1/76
Kansas State	No quota	4,000	7/1/75
Colorado State	No quota	4,000	7/1/75

The University of Nebraska has a reciprocal arrangement with the University of Missouri. We pay no fees for students who qualify for admission in veterinary medicine at Missouri with the understanding that Missouri students can attend the University of Nebraska to study in several specific fields on the Lincoln cam-

pus, and animal technology at Curtis without payment of non-resident fees.

How Many Nebraskans Are Enrolled in Veterinary Colleges?

A total of 70 students are enrolled in five veterinary colleges.

<u>University</u>	<u>Total</u>	<u>Seniors</u>	<u>Juniors</u>	<u>Sophs</u>	<u>Freshmen</u>
Kansas State	20	6	10	1	3
Colorado State	15	2	8	3	2
Iowa State	23	6	2	7	8
Oklahoma State	6	1	2	1	2
Missouri	6	0	3	2	1
	—	—	—	—	—
Totals:	70	15	25	14	16

How Many Nebraska Students Applied and How Many Were Admitted in 1974?

The following data were obtained from colleges of veterinary medicine:

<u>University</u>	<u>No Applied</u>	<u>No. Accepted</u>
Kansas State	10	3
Colorado State	19	2
Iowa State	29	8
Oklahoma State	21	2
Missouri	30	1
	—	—
	109*	16

*Applicants often apply for admission at several schools.

Non-resident students must have a higher grade point average for admission than do resident students. This is due to the fact that there is more competition for the small number of positions available to non-residents.

What Is the Time Interval Between Initial Funding and Graduation of the First Class?

Most schools report a time interval of 10 years.

Are There Agriculturally Related Fields Other Than Veterinary Medicine in Which Training Is Not Offered at the University of Nebraska?

Training is available at the University of Nebraska in all other agriculturally related fields except professional forestry.

TOTAL COSTS OF PRESENT PROGRAM

What Is the Annual Cost of the Veterinary Medical Professional Program as Now Carried by the University of Nebraska?

Total cost for the 1974-75 program is \$271,740. The cost will increase each year as new contracts go into effect for each new class.

What Is the Present Cost of Operation of the Veterinary Science Department, Including Diagnostic Laboratories?

Annual cost of operating the veterinary science program, including the veterinary science laboratory at North Platte, is \$410,786. This includes State and Federal funds. In addition, some grant funds have been available. Eleven veterinarians are employed in the Veterinary Science Department.

COST OF ESTABLISHING A COLLEGE OF VETERINARY MEDICINE IN NEBRASKA

What Is the Estimated Cost of Completely Equipped Facilities in Nebraska?

Estimated costs for a College of Veterinary Medicine in Nebraska range from \$30-50 million. Projected costs depend upon inflation. Some contractors currently are reluctant to bid on large complexes because of inflation and scarcity of materials. Figures include the \$8 million Animal Health Research Center now programmed.

How Will Inflation Affect Future Construction Costs?

The inflationary trend in the total economy for the past 10 years has been between 3 and 5 percent annually. Projections of the inflationary trend for the next 10 years fall in the range of 6 to 7 percent annually. Since the construction industry is a labor-intensive industry,

most experts predict that it will inflate at a rate above average for the total economy. Most estimate the annual inflationary rate of construction costs during the next decade will be 10 percent or more.

Are Federal Funds Available to Aid in Construction of New Colleges?

No. Federal funds have been available in the past and may be available in the future, but at the present are not available.

What Is the Estimated Operating Budget for a College in Nebraska?

The operating budget would be \$4-5 million per year. This is in addition to funds now being spent in veterinary-related areas.

What Would Be the Optimum Number of Students per Class?

According to experienced veterinary educators, an ideal class size would be 80 students. The number accepted would depend on such things as the need for graduates, number of qualified applicants, clinical material available, and size of physical plant. Fewer than 80 students per class increases cost per student. Larger classes tend to become unmanageable due to sheer numbers, and the quality of training deteriorates.

What Would Be Requirements for a Faculty?

The ratio of staff to students as required by the American Veterinary Medical Association Council on Education is one staff to four students plus administrative personnel. Thus, a college of 80 students per class for the four years would require a total of 80 professional staff plus two administrative persons.

Would There Be Enough Faculty Available?

This will be a problem if other states develop colleges of veterinary medicine—funding will be a key to this problem.

OTHER ALTERNATIVES

What Are the Possibilities of Establishing A Regional College?

In this area North Dakota, South Dakota, Montana, Wyoming and Nebraska do not have a college of veterinary medicine. The possibility of establishing a regional college is being explored and discussed with the other states by the Nebraska State Department of Economic Development.

The Agriculture and Environment Committee of the Nebraska State Legislature is also contacting counterparts in each of the other four states to determine the feasibility of a regional college.

The Old West Regional Commission, representing all five states, has approved funding for a feasibility study for establishing a regional college of veterinary medicine. A contract for this study will be let around September 1, 1974.

Six states in the northeast are planning a regional college of veterinary medicine at Amherst, Massachusetts. Oregon, Idaho, and Washington have a joint endeavor which could be considered a regional college.

A regional college would require agreement among the participating states in matters of location of the physical plant and methods of financing. This would require long-range commitment of funds by the states involved.

WHAT IS HAPPENING IN OTHER STATES?

How Many Colleges of Veterinary Medicine Are There in the U.S.?

There are 19 Colleges of Veterinary Medicine in the U.S. now accepting students.

<u>College</u>	<u>Date established</u>	<u>No. students admitted*</u>
Auburn University	1907	115
California	1948	94
Colorado State	1907	93
Georgia	1946	76
Illinois	1944	86
Iowa State	1879	92
Kansas State	1905	94
Louisiana State	1974	36

Michigan State	1910	116
Minnesota	1947	73
Missouri	1949	72
Cornell	1896	65
Ohio State	1885	130
Oklahoma State	1947	60
Pennsylvania	1883	103
Purdue	1959	72
Texas A&M	1916	128
Tuskegee Institute	1945	45
Washington State	1899	66
Total		1,616

* All are for 1972 except Louisiana State which is for 1974,

What Are the Construction Costs for New Facilities at Other Universities?

New facilities have been recently completed or are under construction at the following institutions:

<u>Institution</u>	<u>Construction cost*</u>	<u>Class size</u>
Florida	\$11,000,000**	80
Louisiana State	21,000,000	80
Kansas State	24,000,000	100
Iowa State	26,000,000	120
Illinois	35,000,000***	100
Colorado State	29,000,000****	130

*Based on actual completed cost, bid or firm architectural estimate.

**The veterinary college will share existing basic science and research facilities with the college of medicine and a \$40,000,000 federal public health facility. Cost given here is only for veterinary clinic and specialized veterinary areas such as anatomy.

***Does not include cost of diagnostic laboratory or Animal Resource Facility, Animal Research Facility, Animal Holding and Exotic Disease Facility proposed at a cost of \$16,000,000.

****Does not include radiology, diagnostic or animal support facilities estimated at \$7,500,000.

How Many Veterinarians Are Currently Being Graduated?

The following table shows the number of graduates of existing colleges during the past three years.

<u>Year</u>	<u>Number of graduates</u>
1972	1,039
1973	1,050
1974	1,356

Why Have Existing Colleges Expanded Their Class Size?

Existing colleges have increased enrollment in response to current need and a projected increase in demand for veterinarians. Recent availability of federal funds has stimulated increased admissions in most of the veterinary colleges. Rising pressure by the number of qualified applicants has undoubtedly resulted in state legislative decisions to step up enrollment in existing veterinary colleges.

Are New Veterinary Colleges Being Developed?

Louisiana State University accepted its first class of 36 veterinary students in January, 1974. When operating at capacity, 80 students will be accepted yearly. A new college of veterinary medicine at the University of Florida expects to accept its first class in the fall of 1976.

Three other states, Mississippi, Tennessee and Virginia, have taken definite action to establish new colleges. Discussion is underway for a north-east regional college to include New Hampshire, Maine, Massachusetts, Vermont and Rhode Island.

Oregon State and Idaho Universities, in conjunction with the existing College of Veterinary Medicine at Washington State University, are actively planning a northwest regional college with clinical facilities and faculty at Oregon State (Corvallis, Oregon) and Idaho (Caldwell, Idaho) Universities. These clinical facilities will be used for the last two years of the veterinary curriculum for students from their respective states.

Establishment of veterinary colleges is being strongly discussed in Wisconsin and North Carolina, and colleges may be developed in these two states.

THE ANIMAL TECHNOLOGY PROGRAM

Animal technologists are trained in the Veterinary Technology section of the Nebraska School of Technical Agriculture (UNSTA) at Curtis, Nebraska, to assist graduate veterinari-

ans. These graduates will enter the field at a level less than the professional doctor but above the animal attendant level. They will have the necessary knowledge and skills to perform the routine, technical tasks under the direct supervision of a veterinarian. The opportunities for employment include assisting veterinarians in various types of practice plus jobs in industry and government which are under the direct supervision of a veterinarian.

How Many Students Apply for Animal Technology Training (UNSTA) and How Many Are Accepted?

Forty students (the class limit) are admitted annually. In 1974 these were selected from 110 who satisfied the application requirements.

What Is the Cost of Training an Animal Technologist?

State funds amount to \$3,859 per graduate for the 21-month program. In addition, resident students pay \$125 per quarter for the seven quarters, and non-resident students pay \$250 per quarter.

Is There a Demand for UNSTA Graduates in Animal Technology?

Yes, there are many opportunities for employment. Eighty percent of those who have graduated since the first class in 1970 are working in Nebraska.

In What Kinds of Jobs Are UNSTA Graduates Working?

About 80 percent are working directly with practicing veterinarians. Others work for pharmaceutical laboratories, animal research, and in kennel management and food inspection.

What Effect Do the Animal Technologists Have on the Need for Veterinarians?

Animal technologists improve the quality of the service provided by veterinarians. They do

not replace the need for the professional person, but may increase the quantity of his work and thereby indirectly alleviate some of the need for more veterinarians.

SUMMARY

In Summary, What Are the Alternatives for Veterinary Medicine in Nebraska?

1. Continue as in the past with contracts or other agreements with veterinary colleges in other states to train Nebraska veterinary students. Perhaps this alternative could be improved by negotiating new contracts with additional colleges and more nearly paying the actual costs of training Nebraska students at any college with which we have contracts.

2. Build a College of Veterinary Medicine in Nebraska. This would require large expenditures but would provide more opportunities for a career in veterinary medicine for Nebraska students.

3. Join with states to the north and west of Nebraska in establishing a regional College of Veterinary Medicine.

4. Contract with existing Colleges of Veterinary Medicine in adjacent states to provide the basic training and complete the training in clinics to be established at the University of Nebraska.

This circular was prepared by the following committee:

Chairman—Alex Hogg

Veterinary Science Department

Committee Members—

Veterinary Science Department

Clair M. Hibbs

Ernest L. Stair

Marvin J. Twiehaus

R. Gene White

Agricultural Communications Department

Ralston J. Graham

Agricultural Economics Department

Loyd K. Fischer

Ralph D. Johnson

Animal Science Department

Frank H. Baker

Pre-veterinary Student

Richard L. Sibbel

School of Technical Agriculture

Bill J. Siminoe

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