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Guest Column

M. L. Buchanan
Chairman, Department of
Animal Science



The wheels of change turn slowly, but they grind extremely fine. Entrepreneurs suggest that change is too slow and decisions too deliberate, yet Fargo citizens packed the Scholander Pavillion (West Fargo Fair Grounds) twice in 1976 to witness Horse Pulling Contests. This in spite of the draft horse being almost eliminated from the North Dakota scene 40 years ago with the development of the tractor and reduced manhours of labor available during the time of World War II.

Draft horses, once considered an essential aid to experimental plots, were eliminated by administrative directive in the early '50's. Draft horses were eliminated from many of North Dakota farms at the same time.

The popularity of the horse we now see, however, has not waned. Interest, instead, shifted to the light horse. As a reasonably affluent prosperity returned to both rural and urban North Dakota and interest in recreation developed, so did interest in the horse. This time the horse was a source of relaxation and physical exercise for the tense businessman; and an animal to teach responsibility and devotion to a younger generation. As a result, horsemanship is our most popular 4-H project, and membership in horse clubs one of our most frequent adult activities.

Other changes in the livestock scene are worthy of attention. In the early '40's Hampshire sheep had replaced Shropshires and Southdowns except in Junior Shows. The Columbia had just been introduced. The Columbia breed was largely responsible for establishing a high ranking for North Dakota for fleece weight and value per ewe.

Recent research has demonstrated a more productive system can be devised utilizing the commercial ewe, produced by crossing Rambouil-

(Continued on page 23)

On The Cover: Department chairmen, Myron Andrews, Veterinary Science, and Kenneth McMahon, Bacteriology, watch summer Buildings and Grounds workers Steve Berry and Karen Quandt terrace the front lawn area of the new building. Story on Page 11. (Photo by Jim Berg).

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Table 2. Effect of heat processing upon feeding qualities of cull pinto beans — 28 days.

Item	Treatment	% of Pinto beans		
		0%	20% Dry heat	20% Moist heat
No. of pigs		10	9	10
Av. initial wt., lb.		41.7	41.0	41.5
Av. final wt., lb.		78.2	46.8	64.5
Av. daily gain, lb.		1.30	0.21	0.82
Av. feed consumed/day, lb.		3.83	2.19	3.61
Av. feed per lb. gain, lb.		2.94	10.62	4.39

while moist heating produced a moderate improvement in performance. The second experiment was terminated on the 28th day as the effectiveness of the processing methods was readily apparent.

Only the basal ration (oats-soy) and the ration containing 20 per cent cull pinto beans (both rations were from the first swine experiment) were fed to rats in the second growth and digestion experiment. The growth rate of rats was not reduced as markedly by feeding 20 per cent cull pinto beans as the reduction noted in swine. Feed per unit gain was influenced similarly in both rats and swine. Digestible energy was reduced in the pinto bean ration and the digestibility of the total crude protein was reduced from 80 per cent in the oats-soy basal to 70 per cent in the ration containing 20 per cent cull pinto beans. Digestibilities of calcium, phosphorus and magnesium were not apparently altered by the presence of pinto beans in the ration. Digestibilities of fibrous components were highest in the pinto bean ration, primarily because of the lower levels of fiber in

the ration containing 20 per cent cull pinto beans. The digestible energy content of the cull pinto beans, estimated by difference, was **considerably** lower than that of the oats used as the major ingredient in the ration.

Summary

Cull pinto beans were utilized in two experiments with growing swine and two growth and digestibility experiments with rats.

Cull pinto beans containing primarily immature and frost damaged beans were not acceptable at levels as low as 10 per cent of the total ration for growing pigs. These cull pinto beans were not improved by drying and were only moderately improved by moist "cooking" followed by drying. The use of 20 per cent cull pinto beans in swine rations reduced the digestible energy content of the ration for rats and the digestible energy content of the cull pinto beans (estimated by difference) was less than that of good quality oats.

A smaller quantity of cull pinto beans of higher quality was fed to rats. Some of these materials had been heated by infra-red irradiation to various temperatures. Samples of the higher quality materials were utilized equally by the rats. The value of these observations is doubtful because of the observation that rats may be somewhat less sensitive than growing swine to the "toxic" factors in cull pinto beans.

At this time, the incorporation of pinto beans into rations for growing pigs cannot be recommended to North Dakota swine producers.

Buchanan . . . from page 2

let ewes with Border Leicester rams, mated to a black face ram (Suffolk or Hampshire).

The Columbia ewe, however, continues as the typical and most popular ewe! Ever wonder why?

From 1880 to 1950, the saga of beef cattle development continued down a very narrow path. Selection of easier fattening, earlier maturing strains of the English and Scottish breeds continued to improve the commercial English and Texas Longhorn base of the western beef industry.

It became evident to practical cattlemen that selection for earliness of maturity had been accompanied by reduction of mature size and a correlated reduction in rate of gain. This realization occurred at the same time that performance testing techniques were developing. Semen salesmen appeared on the scene with semen of the so-called exotic breeds that could be advertised as larger than the American versions of the English breeds.

It seems that our proximity to the Canadian supply made North Dakota a vulnerable market for the trials of the newer breeds. We tended to forget that the original Shorthorn, Angus and Hereford stocks were as large or larger than the breeds being introduced. Newness and a limited supply have always had an appeal that resulted in high price. The result!!—in the early 1970's it seemed to the casual observer that the old established breeds would be replaced. But 1976 sees the popularity of these established breeds at new highs. The breeders who have attempted to produce breeding animals of the modern kind are once again finding a market for their wares. The commercial herds once again have reverted to their conventional colors even though their type and scale have been altered.

Livestock types and popularity are not the only part of the agricultural scene subject to change. The conventional tractor is being replaced with the 4-wheel drive. The conventional tractor with bucket loader is being replaced with skid

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BULK THIRD-CLASS

loaders and both replaced with liquid manure systems including lagoons.

The North Dakota farmer continues to be proud of the productive capacity of his fields, but since the time of World War II he has developed great admiration for commercial fertilizers.

North Dakotans still view their state as a grain-producing state, with livestock contributing 30 to 40 per cent of the agricultural income. In all other states there is a close correlation between feed grain production and livestock finishing. The three states that bound us derive the bulk of their income from livestock and livestock products. I believe few agricultural regions have continued for much over 100 years as a one-crop producing area. Livestock production has increased in importance in the produce growing areas of Delaware, Maryland and New Jersey. So, too, have the production systems shifted in the cotton, tobacco and corn producing areas of the U.S. These shifts in many cases served only to aid in soil conservation, not in the complete elimination of the original crop.

North Dakota is rapidly approaching its centennial. Could some of these changes occur here? Could North Dakota increase its cow numbers by more efficient utilization of straws and chaff for winter feed of cow herds? Could North Dakota grasslands carry more cows through adoption of a

sounder grass management program, including more judicious use of non-bloating legumes, deferred and/or rotational grazing and expanded use of natural and commercial fertilizers? Could young cattle be carried to heavier weights by expanded use of by-products of the grain industry, including damaged grains due to weather or machine damage, nonplump barley, screenings including cracked grain and weed seeds? Could the pounds of beef marketed be doubled without any reduction in acres or in dollar value of the state's wheat and barley crops?

Is the life style of the western rancher who hates to see the face of the land he loves destroyed by unreclaimed strip mining worth saving? Perhaps the values our young men develop in the varied agricultural pursuits across this broad state contribute to their adaptability so sought by corporate recruiters for the nation's industries. Look again, also, at the proportion of these men who in later years yearn to return to the slower pace of the rural areas more closely associated with the soil. Could the appreciation of our way of life and the quality of life we know in North Dakota be strong enough to ensure that coming generations could grow up with a pony, a dog and elbow room?

The wheels of change turn slowly. Thank God. Will they slowly grind us or will they grind for us?