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W J O Wilkie

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LOT FEEDING OF BEEF CATTLE

3. FACILITIES REQUIRED FOR A FEED LOT

By W. J. WILKIE, B.V.Sc., Senior Animal Husbandry Adviser

MANY THINGS must be considered in planning a feed lot. The site must be well chosen, fencing, gates and yards must be adequate for the cattle carried and feeding and watering facilities should be of a high standard. Other things to consider are the provision of shelter and shade for the cattle and buildings for feed storage and other purposes.

The Site

In selecting a site, drainage is of first importance because cattle will very rapidly “pug” the soil in a confined space. A firm, gravelly soil is probably best. Sand tends to shift under the influence of hooves and wind, and hollows develop around troughs and gateways, while the sand collects against feed troughs and fences. Clay soils, especially if low lying, work up into a tenacious mud. In this type of soil artificial drainage may be needed.

A low ridge or crest, with a gentle fall each way, and with the general slope of the ridge to the north is ideal. The approach way would be on top of the crest, with access to feed yards or lateral lanes on each side.

The yards should be a reasonable distance from dwelling places, and downhill if possible. In wet weather it is impossible to avoid smells, and in warm weather flies may be a nuisance.

Other factors which may be considered are protection from a prevailing winter wind.
wind by a hill or a timber stand. Free circulation of air in summer is essential, and a mild prevailing wind then would be more helpful than otherwise.

Proximity to a main access road, and an assured water supply would be advantageous, as absence of these could mean extra expense in setting up the yards.

Any site chosen near a town could have the disadvantage of having the cattle disturbed by children or vandals.

The Yards
Size and Capacity

The size of the actual feed yards will depend on the numbers to be fattened together; 100 cattle are not too many if they are suitably matched. For a group this size a yard 200 ft. x 200 ft. is usually recommended. Under present conditions groups as big as this would be unusual in Australia, so that yards may have to be provided for groups of down to 20 to 30 head. It is important that cattle be yarded according to sex, age and condition.

Depending on the soil, yards should provide from 100 to 400 sq. feet per beast. The smaller areas would be used where mud is a problem and covered "hard standing" has to be provided. This may be concrete or built up limestone rubble.

Construction of Fences
Any material that will hold cattle, allow free circulation of air and not cost too much in up-keep will do. A standard wire rope, wire mesh, or piping fence 5 ft.
6 in. high is adequate. Posts should be at 6 ft. to 9 ft. centres according to the strength of the wire or piping rails. Rails should be at 10 in. centres. Gates should be 12 ft. wide to allow passage of machinery for ground clearing and manure disposal. "Escape" ways or "man ways" 10 in. wide should be provided where needed.

A wooden cap along the top of the fences will give an appearance of height and strength, and will deter all but the most determined fencer.

Feed Troughs

A job that has to be repeated at least once daily should be made as simple and as easy as possible. Such a job is feeding up.

Cattle troughs should be located where they can be replenished from outside the yards.

This can be done by having the troughs along one fence of the yards where they can be filled from a laneway. Machines are available which will mechanically deliver almost all types of feed while the truck or trailer is being driven alongside the yard. In modern feed lots the feed is delivered to the trough by an auger.

Feed troughs may be of concrete or wood. A smooth interior finish is desirable so that the troughs can be thoroughly cleaned. They should be 2 ft. 6 in. wide, 15 in. to 18 in. deep in front and somewhat higher at the back. There should be a clearance of about a foot between the bottom of the trough and the ground. Except in very dry areas the troughs and about 10 ft. of standing room should be roofed.

The length of troughing allowed per beast will depend on the age and size of the cattle, and whether they are horned or not. It should be a minimum of 18 in. and need not be greater than 2 ft. 6 in.

Feed troughs, like water troughs, should be inspected and cleaned out as often as necessary, usually once or twice a week.

Water Supply

Although the water supply is one of the most essential parts of an animal's diet, it frequently receives little attention. Things to be considered about a water supply are: availability, quantity, quality, and temperature.

Availability

Water troughs on two sides of the yard are usually considered adequate for large groups. Small groups need only have one trough. One foot of trough space should be allowed for six head of cattle.
Quantity

A supply of 10 gallons per day in hot weather should be adequate for mixed groups. A yard containing all large cattle might need a little more.

Facilities Required for a Feed Lot—TWO

Quality

Water containing up to 300 grains per gallon of dissolved salts is believed to be satisfactory for cattle fattening, but we need more information on this. Water should be clean, free from algae and from unpleasant odours or taste. Cattle are the best judges of these last two.

Temperature

Little is understood about the ability of cattle to thrive on water of different temperatures. It is known that they take less than they need if the water is little above freezing, and hot water, straight from a pipe exposed to the summer sun is unpalatable.

One report says it has been found profitable to have the drinking water at a temperature which is thermostatically controlled at 55° F. This is said to be the temperature at which maximum intake is obtained, and for cattle on a feed lot ration, maximum water intake is associated with maximum feed intake and growth rate.

Protection of the feed trough, and the pipes leading to it, from extremes of frost and sunlight is desirable.

Water troughs need frequent inspection, adequate maintenance, and should be cleaned out frequently.

Shade and Shelter

The upper temperature for comfort and good growth for fattening cattle is 75° F. – 80° F. Above this, appetite is affected and the animals become progressively more distressed as the temperature rises, and the periods of high temperatures lengthen.

Low temperatures—such as we get in Western Australia—do not affect well-fed cattle. A thriving, well-fed steer will not have to use any of the energy from his food to keep himself warm until the temperature gets near freezing point.

Protection from heat can be provided by plenty of shade. The shade provided must be extensive enough to allow the cattle to stand apart under it, and to allow air circulation.

More research is needed in this field to see how extremes of temperature can be avoided for beef cattle at a reasonable cost. One possibility is an evaporative cooler, either a simple, fine spray under an adequate shelter, or a cloth damped by capillary attraction as in the old time “Coolgardie safes,” or by a more ambitious evaporative cooler. Research has shown that these will double the rates of gain of cattle in hot spells.

Shade may be natural or artificial. If shelters are provided they should be high enough to allow a horseman to get to the cattle and posts should be strong enough to withstand cattle rubbing, and sufficiently far apart to allow trucks and cleaning machinery to pass through.

Where feed troughs and the adjacent area are roofed this will provide quite a lot of shade. In areas where heat is a problem air movement under the roof must be unrestricted and a reflective roofing material or paint should be used.

Ground surrounding cattle feed yards should not be bare and dusty. In hot weather the ideal is to have it under irrigation. This reduces radiated heat to a minimum and will cool ground air as it flows towards the cattle.

In areas of high rainfall where the cattle are frequently wet, some protection should be provided from continuous winds as the combination of wind and rain can lead to a severe loss of heat.

Handling and Inspection Yards

Cattle may enter a feed lot from any source. They may be affected by worms, lice or ringworm. They may be horned, dehorned or polled. They will be grazing animals, about to be brought into close contact with cattle from a number of other sources and they will be kept under conditions where they are liable to the diseases of feed lots. The large American feed lots have hospital units and employ their own veterinary staff.

In any feed lot enterprise it should be possible to handle, inspect closely, and perform such operations as are necessary on the incoming animals quickly and safely.
The layout of a feed lot should include a reception yard or yards, quarantine yards (isolated yards) a drafting unit, crush, spraying facilities, dehorning bail, which will also be used for vaccinations, operations and detailed veterinary examinations.

One piece of equipment, absolutely essential to feed lot operations, is a set of cattle scales. Cattle should be weighed in, and out, of the feed lot.

One of the first activities in the handling yard should be the positive identification of each beast as it enters the lot. Such identifications are entered in the records against purchases, deaths and sickness and sales. From these, time spent in the yard can be calculated, and this serves as a check on management, and on the quality of the purchased stock.

Buildings
The buildings needed around a feed lot are those needed for feed storage and preparation, office and workshop space and shelter for mechanical equipment.

All of these needs will be proportioned to the size of the enterprise. Where home grown feeds are used, and these are the cheapest, storage requirements will be based on the year's turnover. Approximately 37 tons of hay and 73 tons of grain, plus minerals, will be needed to fatten 100 average young store steers.

The "flow" of stock and feed should be studied and buildings sited for maximum ease in handling. Having feed storage higher than feed preparation, and this again higher than the feed lot reduces the effort in moving the material.

Manure
Manure disposal is a problem in wet, open yards. In dry areas management is simple. Weekly routine includes keeping the feeding area clear. At less frequent intervals manure can be scraped together in a mound somewhere in the yard. The cattle will camp on this but in dry weather will come to no harm. Once or twice a year there can be a general clean-up, with the manure going into the farm pasture improvement programme, or being sold. American feed lots assess the value of manure sold at about 10s. per beast fattened.

Flies
It will be impossible to keep flies down completely. The little bush fly is attracted to stock buildings and is in constant supply. Spraying of posts and rails in laneways, of walls, in the feed preparation room, and possibly the use of the newer electric fly killing devices should keep the fly level within bounds, so that the feed lot will be no more objectionable than a frequently-used sheep yard.

Rodents
Rats and mice are a constant problem and must be controlled. The beginning of such control must be in the design and upkeep of the storage facilities. Modern rodenticides are quite effective and cats can also be helpful.
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<td>Latex rubber pillow</td>
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<td>£1 19 6</td>
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<td>Heaters/Demisters, various brands, all less 20%</td>
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Mr. G. L. Throssell Retires

The Department of Agriculture's most experienced field extension officer retired on June 30 after 44 years of service. He is Mr. Gerald Ledson (Gerry) Throssell, Senior Adviser in the Department's Wheat and Sheep Division and Officer-in-Charge of the Geraldton district office.

Mr. Throssell started his service with the Department in 1921, when he was the first cadet appointed under a cadetship scheme introduced by the late Dr. G. L. Sutton to recruit agricultural scientists to the Department. Under this scheme Mr. Throssell obtained a Diploma of Agriculture from the University of W.A. in 1924. He later proceeded to the degree of Bachelor of Science in Agriculture.

After completing his cadetship Mr. Throssell was appointed to the Department's Wheat Branch as an Agricultural Adviser in the wheatbelt, and during his career was stationed at Merredin, Salmon Gums, Moora and Geraldton. He was one of the first advisers to be stationed in the country and at one stage he was the Department's only adviser actually based in the cereal and sheep areas.

In 1940 he joined the A.I.F. and saw active service in Palestine and Syria before being discharged for medical reasons in 1943, when he immediately returned to the Department of Agriculture.

During his long service in the wheat and sheep areas Mr. Throssell earned wide respect among farmers, business men and his professional colleagues. He was especially popular in the northern agricultural areas, where he served for a total of 24 years, based at the Department's Geraldton district office.

His research and extension activities were largely responsible for the great expansion of improved pastures and the development of light land that have been a feature of agriculture in this region over the past 20 years.

He has had a special interest in the Department's Chapman Research Station at Nabawa. Here the crop yields and sheep carrying capacity have been greatly improved by clover pastures and improved farming practices introduced during his period of service at Geraldton.

Mr. Throssell played a leading part in the formation of Western Australia's first pasture improvement group at Miling in 1939. This group was so successful that the movement spread rapidly throughout the farming areas of Western Australia. It has since had a major influence on the establishment of improved pastures, which now cover more than nine million acres in the agricultural areas.

Another of his innovations was the "Here's Your Answer" programme he started in Geraldton in 1954. This weekly rural radio programme was unique in Australian agricultural extension, in that it ran for nearly 10 years without a break.

A civic reception by the Geraldton Town Council and an editorial in the local newspaper to mark his retirement are some indication of the high regard of the people of Geraldton for this veteran agricultural adviser.
Parents are reminded that applications for 1967 admission to Muresk Agricultural College close on December 31 of this year. A preliminary selection of 1967 entrants is made after the Junior results are available early in 1966.

The successful applicants then continue with Sub-Leaving, or higher studies at secondary school in 1966.

Before the course can be commenced applicants must have studied:

**Junior**—
(a) English; Maths A; Maths B.
(b) Physics and Chemistry; (or Science A and Science B).
(c) Book-keeping, if possible.
(d) Others such as Geography.

**Sub-Leaving**—English; Maths A; Physics; Chemistry and others.
Some prefer to take Junior Book-keeping in Sub-Leaving.
Places still exist for 1966 commencement. They are filled in order of application, during 1965, by qualified applicants.

**Duration of Course**—Two years.

**Fees**—Approximately £200 per annum covering full residential charges.

**Scholarships**—Department of Agriculture (3), the “Countryman”, and J. J. Poynton Memorial (2).

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Full details of the College are obtainable from the Principal, Muresk Agricultural College, Muresk, W.A., or the Department of Agriculture, Jarrah Road, South Perth.