

INDUSTRY IMPLEMENTATION OF RESEARCH RESULTS FROM
BREEDING HERDS IN CENTRAL QUEENSLAND

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Summary

A survey of 233 beef properties demonstrated that 39% of properties practised some form of controlled mating and 96% weaned calves. While this represents a marked change over the last 20 years, the extension recommendations for time of mating and time of weaning were fully implemented by only 7% and 9% of properties, respectively, and both practices by only 2% of properties.

Significantly more properties had adopted weaning recommendations than mating recommendations.

Property size, vegetation type, geographic location and type of dominant enterprise had no significant effect on implementation. The level of property development was a significant factor in the implementation of both recommendations but the failure to implement could not be attributed entirely to a lack of facilities.

The reasons for non implementation of research results are discussed.

I. INTRODUCTION

A combination of seasonal mating from October to March and strategic weaning between April and June has been shown to maximize cow and calf production in beef breeders in the Central Highlands environment of Queensland (Stubbs and Mayer 1966, Rudder and McCamley 1972).

Since the mid-sixties, an important component of the extension activities of the Queensland Department of Primary Industries has been . advocacy of seasonal mating and strategic weaning based on this local research.

This paper reports the results of a survey conducted in 1974 to measure the implementation of these practices by the beef industry and on the effect that various property components had on the level of implementation,

II. MATERIALS AND METHODS

The survey area was the Belyando, Peak Downs, Emerald, Bauhinia and Jericho local authority areas. The rural production of the area was described by Mawson (1968).

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Information concerning the period of mating and the period of weaning was collected from 233 producers representing about 30% of the holdings with beef cattle. All Department of Primary Industry staff assisted in collecting the information from producers met in the course of their normal activities (extension, regulatory and social). In addition, local primary producer organisations asked members to provide information when attending meetings. These data* were classified according to implementation of research results based on the work of Stubbs and Mayer (1966) and Rudder and McCamley (1972) and were:-

- Mating
 - Full implementation. The mating period continued for **no longer** than seven months with the bulls removed from the breeding herd by the **30th** April.
 - Partial implementation. The mating period continued for no longer **than** nine months with the bulls removed from the breeding herd by the **30th** June.
 - Non implementation. All other mating programmes.
- Weaning
 - Full implementation. Weaning between **March** 1st and June **30th** but excluding those properties which weaned in June only.
 - **Partial** implementation. Weaning between **March** 1st and August **31st** but excluding those **properties** which weaned in August only.
 - Non implementation. All other weaning programmes including those properties which did not wean at all.

Surveyed properties were classified according to their dominant vegetation group; woodlands, open downs or scrub (Pedley 1967 and Story 1967) and according to their geographic location, whether east or west of the **Drummond** range. An evaluation was made of individual property development in terms of high (H), medium (M), or low (L) and considered the existence of, and potential existence for, stock water, **cattleyards**, subdivision, timber treatment and pasture **establishment**. The properties were further classified by size and by dominant enterprise, either beef cattle or agriculture.

The **chi-square** test was used to analyse the differences in levels of non implementation of mating and weaning **recommendations**.

III. RESULTS AND DISCUSSION

This survey showed that 39% of properties removed bulls from the breeding herd for three months or longer, and 96% weaned. This compares with Sullivan (1954) who reported that the **majority** of properties in the Central Highlands did not remove their bulls and only weaned male **calves**. This would indicate substantial changes in breeder management practices. However, only 7% control mate and 9% wean at the times recommended by research.

Forty-nine percent of **properties** had not implemented either mating or weaning recommendations and only 2% had fully implemented both practices (Table 1). There was a significantly greater number of properties not implementing mating recommendations than weaning programmes ($P < 0.01$, $\chi^2 = 16.244$).

TABLE 1

Overall implementation of mating and weaning recommendations
(Figures in parenthesis give the number of properties in each category)

	Mating			Total weaning
	Full	Partial	Non	
Weaning: Full	2% (5)	3% (8)	4% (9)	9% (22)
Partial	3% (7)	11% (26)	19% (44)	33% (77)
Non	2% (4)	6% (15)	49% (115)	58% (134)
Total mating	7% (16)	21% (49)	72% (168)	100% (233)

Property size had no significant effect on implementation, nor were there any differences between farmers and graziers, distinguished on the basis of dominant enterprise, as suggested as possible by Gruen (1970).

The implementation of weaning and mating programmes did not differ significantly for both vegetation group and geographic location within each stage of development.

TABLE 2

Implementation of mating recommendations within property development
(Figures in parenthesis give the number of properties in each category)

	Implementation			Total
	Full	Partial	Non	
Development: High	16% (10)	41% (25)	43% (26)	100% (61)
Medium	4% (4)	20% (19)	76% (73)	100% (96)
Low	3% (2)	7% (5)	91% (69)	100% (76)

For non implementation vs. combined full + partial implementation
H < M: $P < 0.01$, $\chi^2 = 17.87$ H < L: $P < 0.01$, $\chi^2 = 36.93$ M < L: $P < 0.05$, $\chi^2 = 6.41$

TABLE 3

Implementation of weaning recommendations within property development
(Figures in parenthesis give the number of properties in each category)

	Implementation			Total
	Full	Partial	Non	
Development: High	18% (11)	41% (25)	41% (25)	100% (61)
Medium	8% (8)	35% (34)	56% (54)	100% (96)
Low	4% (3)	25% (19)	71% (54)	100% (76)

For non implementation vs. combined full + partial implementation
H < M: N.S. H < L: $P < 0.01$, $\chi^2 = 12.54$ M < L: $P < 0.05$, $\chi^2 = 3.97$

The most **significant** property component affecting implementation of both practices was the stage of property development (Tables 2 and 3). Some of these differences could be attributed to a lack of facilities; for example, the 76 L properties implemented more recommended weaning programmes than mating programmes ($P < 0.01$) which might be partially explained by the absence of an effective bull paddock. However, this does not explain differences between M and L properties in weaning implementation.

Many complex reasons why an innovation is adopted have been **propounded**, for example by Emery and Oeser (1958). A system of priority decision making may be in operation, such as property development before management innovations as suggested by Crouch (1972).

The discrepancies between the most effective time to carry out the practices as indicated by research and actual practice by the **adapters** could be explained by industry difficulties in applying the research results to the commercial situation, although in this case the **research** was conducted on moderately developed commercial properties in the local environment. Other explanations are a lack of understanding of research results, a questioning of **the** accuracy of the results, or a failure of extension to communicate accurately.

It is considered that the high proportion of producers surveyed would have offset or greatly reduced any **bias** resulting from the method of **survey**. Although a random sample of producers might have been preferable it would have been difficult to implement. The method **wed** had a negligible cost and was comparatively simple.

IV. ACKNOWLEDGEMENTS

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V. REFERENCES

- GROUCH, B.R. (1972). Proceedings of the Third World Congress of Rural Sociology, XII: 431.
- EMERY, F.E. and OESER, O.A. (1958). Information, Decision and Action, (Melbourne University Press)
- GRUEN, F.H. (1970). Rural Australia, Australian Society: A Sociological Introduction, (Davies, A.F. and Encel, S. 2nd Edition: Melbourne).
- MAWSON, W.F.Y. (1968). Fitzroy Region, Queensland Resource Series Rural Production, (Department of National Development: Canberra).
- PEDLEY, L. (1967). Land Research Series, CSIRO Australia, 18: 138.
- RUDDER, T.H. and McCAMLEY, K.D. (1972). Proceedings of the Australian Society of Animal Production, 2: 153.
- STORY, R. (1967). Land Research Series, CSIRO Australia, 19: 108.
- STUBBS, W.C. and MAYER, B. (1966). Queensland agricultural Journal, 92: 668.
- SULLIVAN, J.J. (1954). Queensland agricultural Journal, 80: 103.