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**METHODS OF MANAGEMENT, SOURCES OF ADVICE AND
OBJECTIVES AMONG A SAMPLE OF QUEENSLAND
DAIRY FARMERS ***

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Introduction

A University of Queensland survey of dairy farms carried out in Boonah Shire, S.E. Queensland, in 1961, indicated that only 49 out of 164 farmers chosen at random had ever sought advice from the Agricultural Advisor (A.A.) of the Department of Agriculture and Stock. Subsequent analysis showed that farmers who had not had any contact with the Advisor tended to have lower production per cow and lower net incomes than the farmers who had sought advice. It is assumed that this sort of situation is true of farming generally. If extension authorities ever decide to direct major attention to high-cost low-production farms, extension workers may have to be prepared to cope with objections to change and attitudes of mind quite different from those to which they are normally accustomed. The purpose of this paper is to compare farmers who seek advice from the A.A. with those who do not. It is shown that there are marked differences in attitudes to improved management practices, extension aids and farming generally.

The original sample of 164 randomly selected farmers were first divided into two groups: those who had never sought the advice of the A.A. (49) and those who had had no contact with him (115). This paper compares two samples each of 25 farmers selected at random from each group. For convenience the 25 selected from the 49 are referred to as the HI group and the 25 selected from the 115 as the LO group. The average butter production per cow among the HI group was 184 pounds compared with a 122 pounds average per cow among the LO group. For the 1960-61 season (a drought year) the management surplus¹ of farmers in the HI group averaged £1,133 and for the LO group £682.

The analysis proceeds as follows:

Current levels of management in each group are described and attitudes towards improved practices defined. An attempt is then made to relate differences in attitudes to differences in backgrounds and objectives. Information seeking habits and social contacts are explored in order to determine whether both groups exhibit any common characteristics which might be exploited by extension workers. Finally, farmers' perceptions of the role of the A.A., D.I. (Dairy Inspector) and S.I. (Stock Inspector) are discussed. Throughout the analysis, stress is laid on the significance of our findings as far as extension workers are concerned.

* This paper reports on one aspect of a more comprehensive study financed by a research grant from the Rural Credits Department of the Reserve Bank of Australia.

¹ Gross returns less running expenses and overheads.

Current Level of Management

Our basic hypothesis is that at some time it may become necessary or expedient for the A.A. to concentrate attention on farms similar to those of our LO group. If management standards, and hence net income, are to be raised, the A.A. will need to know what is the present level of management on such farms.

Table 1 includes data relating to the frequency of use of superior² management practices³ among the HI and LO groups. In all cases a greater proportion of HI group farmers use superior practices. For example, 68 per cent of the HI group herd test at present or have done so in the past, compared with 12 per cent in the LO group. Seventy-two per cent of the HI group have had their milking machine tested by the Dairy Inspector but only 12 per cent of the LO group have done so. Eighty-eight per cent of the HI group always buy their bulls from registered studs compared with 28 per cent of the LO group. While almost half the HI group regularly topdress lucerne or pastures, only 8 per cent of LO group farmers do so.

TABLE 1
*Use of Particular Management Practices**

Practice	..	HI	LO	χ^2	<i>p</i> .†
1. Breed Own Replacements	Yes ..	22	17	1.86	n.s.
	No ..	3	8		
2. Always Buy Bulls from Registered Studs.	Yes ..	22	7	16.09	< .001
	No ..	3	18		
3. Herd Test—Now or Previously	Yes ..	17	3	14.08	< .001
	No ..	8	22		
4. Join an A.I. Group	Yes ..	20	4	16.36	< .001
	No ..	5	19		
5. Have Had Milking Machine Tested.	Yes ..	18	3	15.82	< .001
	No ..	6	20		
6. Vaccinate for Bovine Abortion	Yes ..	16	9	2.88	n.s.
	No ..	9	16		
7. Acres Lucerne per Farm	..	21	10	..	..
8. No. Bales Hay Saved per Year	..	1,674	481	..	..
9. Feed Grain in Bails Regularly	Yes ..	11	3	4.86	< .05
	No ..	14	22		
10. Make Ensilage ..	Yes ..	5	1	1.70	n.s.
	No ..	20	24		
11. Topdress Regularly	Yes ..	11	2	6.65	< .01
	No ..	14	23		
12. Irrigate Regularly	Yes ..	12	4	4.50	< .05
	No ..	13	21		

* Some responses could not be included in the categories chosen, hence all 25 farmers in each group are not always listed.

† Probability of drawing a χ^2 value as large or larger by chance, given the null hypothesis.

² Superior in the sense that the A.A. recommends that they be used.

³ The practices listed were chosen as a representative cross-section. There have been no deletions due to a low χ^2 .

It is suggested that Table 1 indicates to the A.A. the sort of situation he may expect to find. It may be objected that factors other than the practices listed may be responsible for differences in butter per cow. Two of the more obvious alternative explanations include differences in herd size (in a bigger herd it is harder to maintain a high level of production per cow) and size of farm (small farms may be overstocked). However, these explanations do not fit the facts because herd size (HI 49 cows; LO 48 cows) and size of farm (HI 281 ac.; LO 285 ac.) are similar. Another possible objection is that costs may be greater on the HI farms. Again this is not true. Costs per unit of output on the LO farms are 29 per cent greater.

More importantly, the A.A. will need to know the attitude of LO group type farmers to the management practices he advocates. Initially one would hope that the farmer realizes all is not well and that it is desirable to alter the method of running the farm. In practice this is not always true. In answer to the question "What do you think limits production on this farm", 20 per cent of the LO group expressed no opinion or did not know (all HI group farmers had comments to offer). Seventy-two per cent of the LO group were reasonably satisfied with the present dairy cow feeding policy (52 per cent in the HI group). Of those reasonably satisfied in the LO group, 92 per cent could see no way of improving feeding but only 38 per cent of the HI group considered no further improvement was possible. In reply to a further question, "Are you satisfied with your current level of production", 88 per cent of the LO group and 40 per cent of the HI group answered in the affirmative.

Table 2 includes farmers' assessments of the most important way in which the running of the farm might be improved. Both groups put forward similar suggestions. The major difference was that while 40 per cent of HI group farmers considered that additional watering facilities would be an improvement, only 12 per cent of the LO group thought likewise. Thirty-six per cent of the LO group could see no way of improving the running of the farm. Faced with such a situation, many A.A.s are reduced to silence. They have no sensible and sound arguments ready to counter such a point of view. Of the 16 LO farmers who could see ways of improvement 11 stated that they intended making at least some of these

TABLE 2

Farmer Assessments of Improving Running of Farm

Response	HI	LO
Can't See any Way, No Opinion.. ..	2	9
Irrigation or Water Supply	10	3
Better Stock	3	3
Better Feeding	3	3
Further Subdivision	3	3
More Machinery or Buildings	3	3
More Labour	1	..
Clearing Regrowth, Scrub .. ..	..	1
Total	25	25

improvements compared with 22 out of 23 in the HI group. From the data presented so far it is suggested that an important task faced by the A.A. on LO type farms is to demonstrate to the farmers that the adoption of improved practices is consistent with particular goals the farmers may have in mind—for example high net incomes.⁴

Attitudes towards Improved Practices

If we now assume that farmers are willing to consider adoption of suggested practices, another type of problem is posed for the A.A. This relates to the state of knowledge of the farmer about the practice. He may know nothing or little about it or have prejudiced or mixed-up ideas. For example, consider herd testing. Of the LO group only 3 had ever tested. Table 3 indicates the reasons why the remaining 22 did not test. Thirteen farmers need information about testing but have no preconceived prejudices. The remainder (9) need concise, sensible and practical data showing that their fears are groundless. By way of contrast, of the 17 farmers in the HI group who do or have tested, the majority see it as a low cost means of improving production.

TABLE 3

Farmers' Reasons for Not Herd Testing
(LO group only)

Not Interested, Never Bothered, Don't Know ..	13
Extra Trouble and Time	3
Can Tell Good Cows Without It	2
Too Costly	1
Too Old	1
Buy all Replacements	1
A "Racket"	1
Total	22

TABLE 4

Reasons for Not Joining an A.I. Group

Reason	LO	HI
Little or No Knowledge	5	3
No Opinion	3	..
Cost Too High	3	2
Unnatural	2	1
Own Bulls as Good	2	..
Poor Results	1	..
Stock Too Poor	1	..
Stud Breeder .. .. .	..	1
Too Old	1	..
"Humbug"	1	..
Total	19	7

⁴ Even if the goal of LO farmers is not high net incomes, it is difficult to visualize an alternative goal which cannot be at least partly achieved by adopting improved practices.

Artificial insemination of cows provides another example. Twenty HI group farmers would join an A.I. group compared with 4 farmers in the LO group. Table 4 indicates reasons for not joining.

A.I. is a comparatively recent innovation among butterfat farmers in the district so that lack of knowledge is an important factor in non-adoption. The strategy that an A.A. might use here is to spread knowledge before incorrect ideas become too prevalent.

A general impression gained in the course of the field work was that most farmers were overstocked. Farmer attitudes towards stock feeding thus become relevant. Farmers were asked how they usually decided on the acreage of grain and fodder crops to plant. Fifty-two per cent of the HI group consciously based acreages on number of stock carried, but only 16 per cent of the LO group looked at feed requirements in this fashion. Both groups could relate grain requirements to pig numbers more easily than they could relate forage requirements to cattle carried. Only 2 of the HI group (and one of the LO group) worked on specific acres-per-cow standards.

The LO group farmers who did not base needs on per cow requirements tended to think in terms of a fixed acreage related mostly to previous years. If, as appears likely, underfeeding is a major management deficiency, then past experience might well dictate a minimum rather than an optimum feeding level. The A.A. then has the delicate task of inferring to a tradition-oriented group that district practice built up over the years is not sound.

As far as attitudes towards adoption are concerned, it appears that some rather unexpected justifications for non-adoption are sometimes met with. Unless the A.A. has a carefully reasoned case to meet all possible objections, he may find that the lost battle is, in farming, the lost war.

Farmers' Background and Objectives

It is suggested that in order to be able to counter the sort of objections to change that we have shown to be prevalent in the LO group, the A.A. must be familiar with his clients' social setting, attitudes and goals. Advice may then be framed in a form more likely to lead to action on the part of the farmer. We shall now examine, therefore, whether LO group type farmers differ in background and objectives from HI group type with whom the A.A. is more accustomed to dealing.

It might have been thought that the average age of HI group farmers would be lower than that of the LO group because it is commonly supposed that young men are more receptive to new ideas and less tradition bound than old men. Our data do not support this view. *The average age of both groups is almost the same (HI 51 ; LO 52) and the range in age is similar.* A suggested explanation is that traditionalist attitudes are transmitted within families and are not dependent on age alone. Another somewhat unexpected finding, at least in our sample group, is that *there is no direct correlation between school leaving age and the adoption of improved practices.* The modal grade of leaving school for the HI group is 7, for the LO group, 6. The education provided for members of the HI group ranges from Grade 4 to Junior and for the LO group from Grade 4 to Grade 8. Eighty-four per cent of the HI group proceeded no further than Grade 7 compared with 96 per cent in the LO group.

However, the adoption of improved practices does appear to be associated with at least two sets of factors namely, reasons for entering farming (here called initial motivation), and experience in jobs other than farming.

The initial motivations of farmers in our sample vary widely but may be grouped under six categories:—

- (1) Did not know (LO 2 ; HI 1).
- (2) Family circumstances (LO 9 ; HI 4).
- (3) Knew nothing else (LO 10 ; HI 5).
- (4) Only work available at the time (LO 1 ; HI 1).
- (5) Interest in the job (LO 2 ; HI 11).
- (6) To make money (LO 1 ; HI 3).

The categories have been arranged so that there is an increasing degree of decisiveness on the part of the individual from category (1) to category (6).

It is also assumed that the first three categories are regarded as indicative of a passive orientation, the last three as purposeful. (Purposeful choice includes choice made in an economic context which was understood but over which the individual could exert no control, e.g., the depression.) Table 5, part 1, indicates that 60 per cent of farmers in the HI group had a purposeful orientation to farming compared with only 16 per cent of the LO group. Using a χ^2 test, we find that this difference is significant at .005 level of probability. We conclude that motivations for entering farming differ between the two groups.

It now appears that the LO group take up farming because they tend to conform to pressures from social surroundings. It is possible that LO group farmers also lack experience in jobs other than farming. This proves to be so. Table 5, part 2, shows that only 25 per cent of the LO group have had jobs other than farming, compared with 56 per cent of the HI group.

In short, most individuals in the LO group accept the dictates of their immediate social circumstances and lack experience in other jobs whilst most of the HI group have chosen farming as an occupation against a background of other job experience. The extension worker will need to know whether there are other differences which should be taken account of when advising LO type clients. For example, do aims of members of the two groups differ? In answer to the question: "What do you really aim to get out of farming", only two farmers (both HI group) gave "non-mercenary" replies, i.e. replies not related partly or wholly to income or ownership of property. Both wanted only "satisfaction at a job well done".

The other replies fall into five categories:

- (1) To make a living (LO 10 ; HI 3).
- (2) To make a living plus extra money (e.g. "enough to retire on") (LO 12 ; HI 13).
- (3) To get a farm (LO 1 ; HI 1).
- (4) To make plenty of money (LO 2 ; HI 3).
- (5) To run a profitable business or build up the property (LO 0 ; HI 3).

TABLE 5
*Farmers' Responses to Questions on Attitudes and Background**

Subject	Response Categories	HI	LO	χ^2	p.†
1. Initial Motivation	Purposeful ..	15	4	8.49	< .005
	Passive ..	10	21		
2. Had Jobs Other Than Farming.	Yes ..	14	5	5.43	< .025
	No ..	11	20		
3. Aim to Get Out of Farming	A living ..	3	10	6.67	< .01
	Other answers	22	15		
4. Seek Advice from D.I. ..	Yes ..	20	9	8.21	< .005
	No ..	5	16		
5. Seek Advice from S.I. ..	Yes ..	12	8	.75	n.s.
	No ..	13	17		
6. Pick Up Ideas from Other Farmers.	Yes ..	15	3	9.93	< .005
	No ..	10	21		
7. Pick Up Ideas from Salesmen	Yes ..	7	2	2.38	n.s.
	No ..	17	23		
8. Subscribe to <i>Queensland Agricultural Journal</i> .	Yes ..	10	0	10.12	< .005
	No ..	15	25		
9. Friends Outside	Yes ..	20	8	9.82	< .005
	No ..	5	17		
10. Attend Shows, Spend Holidays Outside.	Yes ..	21	12	5.42	< .025
	No ..	3	11		
11. Belongs to a Secular Group	Yes ..	19	6	11.52	< .001
	No ..	6	19		
12. Attend Field Days Regularly	Yes ..	20	6	13.54	< .001
	No ..	5	19		
13. Duties of the A.A.	Nothing ..	3	14	14.09	< .001
	Action ..	21	9		
14. Duties of the D.I.	Nothing ..	4	11	6.09	< .025
	Action ..	21	14		
15. Duties of the S.I.	Nothing ..	7	10	1.43	n.s.
	Action ..	18	15		

* Some responses could not be included in the categories chosen, hence all 25 farmers in each group are not always listed.

† Probability of drawing a χ^2 value as large or larger by chance, given the null hypothesis.

TABLE 6
Farmers' Aims in Dairying

Aim	HI	LO
No Opinion .. .. .	..	2
Improve the Herd	5	10
Enlarge the Herd	1	1
Grow Good Feed .. .. .	..	1
Improve the Business	2	..
Raise Production, Make Money ..	14	6
Make a Living	2	5
Get Out	1	..

It seems appropriate to interpret the response "make a living" as indicating a subsistence orientation, while all other replies represent varying types of entrepreneurial⁵ orientation from a wish to accumulate money for investment to a desire to assume the role of a business owner. The "strongest" form of this orientation is found in the HI group; as Table 5, part 3, shows the subsistence orientation is significantly correlated with the LO group and almost absent in the HI group. In addition to the question about general aims in farming, the farmers were asked their aims in dairying. The responses are shown in Table 6. There are two main types of response:

(a) those relating to stock management, and (b) "mercenary" responses. It appears that "improve the herd" is widely recognized as a goal in both groups. But in the "mercenary" responses to the question there is a sharp distinction between the LO and HI groups. Of eighteen HI group farmers, sixteen aimed at raising production, making money or improving the business. But of eleven in the LO group, five were only interested in making a living. These attitudes add force to our previous characterization of the two groups as subsistence and entrepreneurial in orientation respectively. An added theme which appears in the HI group responses but not in the LO is that of pride in having a good herd. It is concluded that the A.A. cannot assume that the goals he assists his usual clients to achieve are similar to those of potential LO type clients.

Farmers' Sources of Information and Social Contacts

We have crystallized the situation to the extent that the extension worker has a more adequate knowledge of the background and goals of LO type farmers. But contact has yet to be made with the farmer either on his farm or through some group activity in which he participates. Unfortunately, as far as the LO farmers are concerned, contact is already slight. As noted previously, while all the HI group seek advice from the A.A., none of the LO group do so.

Eighty per cent of the HI group and 36 per cent of the LO group seek advice from the Dairy Inspector (D.I.) (Table 5, part 4). The corresponding figures for the Stock Inspector (S.I.) are 48 per cent and 32 per cent (Table 5, part 5). Members of the HI group seek advice about twice as often as the LO group, but for both groups the D.I. is a more popular source of advice than the S.I. This is due to the fact that the D.I. visits every farm periodically in the course of his duties and therefore makes personal contact with every farmer, a point of significance in the organization of extension work. Among the LO group although no member reports that he has sought advice from the A.A., 44 per cent have sought advice from the D.I. or the S.I.

It is now interesting to compare these figures with the incidence with which ideas are picked up from other sources. The HI group report picking up ideas from other farmers with a far greater frequency than do the LO group (Table 5, part 6). Taking both groups together, the number of

⁵ In economics, by convention, businessmen are known as entrepreneurs. It is assumed that the aim of the entrepreneur is to maximize profits, i.e., make profits as large as possible.

farmers who pick up ideas from other farmers (36 per cent) is less than the number who seek advice from the D.I. (58 per cent) or the S.I. (40 per cent). Salesmen are not prolific sources of ideas but are not to be completely discounted. Twenty per cent of the sample report having picked up ideas from salesmen. Members of the HI group pick up ideas from this source more frequently than members of the LO group (Table 5, part 7). Forty per cent of HI group farmers subscribe to the *Queensland Journal of Agriculture* published by the Queensland Agriculture and Stock Department (annual subscription 5s. 0d.) but none of the LO group do so (Table 5, part 8).

As far as social contacts are concerned, we have already shown that the entrepreneurial orientation of the HI group appears to be related to initial experience "outside". The question then arises as to whether maintenance of continuity of contact with things "outside" is greater among HI group farmers. Table 5, part 9, indicates that there is a significant difference between the two groups in relation to having friends "outside". Also, in relation to leaving the farm to attend shows or spend holidays outside the district the HI group show clearly that the "outside" is attractive and meaningful to them, while the LO group are content to stay at home (Table 5, part 10).

As we have already seen, members of the HI group pick up ideas from other farmers five times as frequently as members of the LO group. This is partly owing to their greater degree of participation in secular social groups in the district. Although 24 per cent of the LO group are members of such groups, 76 per cent of the HI group are members (Table 5, part 11). Furthermore, practically all (80 per cent) HI group farmers regularly attend field days held in the district but only a small proportion (24 per cent) of the LO group do so (Table 5, part 12).

The data illustrate that failure to seek advice from the A.A. is not only related to lack of contact with other extension workers or keeping abreast of new ideas in farm journals, but is also associated with infrequent participation in social and other community activities in the district. Our LO group farmers are rarely around to make contact with. Field days organized by advisors obviously fail to attract most of them. It is possible that discussion groups and film evenings may be just as unsuccessful in this respect. Why does this state of affairs exist? The problem is not a simple one but part of the answer may be found in farmers' views on the function of Government officers.

Farmers' Perceptions of the Role of the A.A., D.I. and S.I.

The degree to which any agency is used depends upon the users' perception of the function and value of the agency. Since the HI and LO groups differ significantly in the degree to which they seek advice from the A.A., D.I. and S.I., we might suspect that their perceptions of the role of these officers are different.

The answers to the question about what the farmer thought the proper duties of these officers were, are summarized in Table 7. A large proportion of members of the LO group know nothing about the duties of the A.A. The few who mention some specific function connect him with crops and fertilizers. Some members of the HI group are vague about the duties

of the A.A. (e.g., advise farmers), but most of them connect him with soil testing, fertilizer use, pasture improvement and cropping. When the data are dichotomized into "know nothing" plus "do what he is doing" versus mention of some action, the responses of the HI and LO groups are significantly different (Table 5, part 13). Six per cent of our sample consider that the activities of the A.A. are "a waste of money".

TABLE 7

Farmers' Perceptions of the Roles of the Agricultural Officer, Dairy Inspector and Stock Inspector

Category of Response	A.A.		D.I.		S.I.	
	HI	LO	HI	LO	HI	LO
Know Nothing .. .. .	..	13	..	..	2	6
Do What He is Doing	3	1	4	11	5	4
Vague Action	11	6	7	8	7	9
Specific Action	10	3	14	6	11	6
Waste of Money; Should Leave the District.. .. .	1	2	..	..	..	..

No one claims to know nothing of the duties of the D.I. (he inspects every dairy periodically) but many of the ideas of what he is supposed to do are vague. Very few of the LO group conceive that the D.I. carries out any specific function other than dairy inspection. Among the HI group, maintenance of cream quality is mentioned by some, but few mention his activities in relation to milking machine testing. When the data are treated as for the A.A. there is no significant difference between the groups (Table 5, part 14).

There is a slightly greater lack of knowledge about the duties of the A.A. than about those of the S.I. The LO group are less informed than the HI group (Table 5, part 15). The great majority who mention a specific duty of the S.I. regard him as a person who attends sick animals. One farmer mentioned that he should be a qualified veterinarian, another that he issues stock permits, and a third that he was not needed. It is apparent that those who know anything at all about the S.I. regard him as having a very narrow range of duties.

It is clear that although the HI group, owing to their more varied background of social experience and their motivational pattern, learn more about the activities of these government officers, almost all farmers in the sample have a relatively restricted view of their functions.

Summary and Conclusions

Farmers who do not seek advice from the A.A. differ in various ways from those who seek advice. For example, they do not use superior management practices. This is because not only do they have little or no knowledge concerning the practices but also because in general they

are satisfied with their present methods and see no way of improving them. However, if the adoption of improved practices assists in achieving farmers' goals, the A.A. must not only spread knowledge about the practices, but must also ensure that erroneous beliefs about them are corrected.

Many farmers who do not seek advice are only interested in "making a living". It may be desirable from the individual or the community point of view to change this subsistence type orientation to one of an entrepreneurial outlook.

Failure to seek advice from the A.A. is also associated with infrequent participation in social and other group activities in the district. Farmers should be encouraged to join secular groups and these groups themselves might be used more frequently by the A.A. as contact agencies. More importantly, however, if advisors' services are to be used more frequently, farmers will need to be better informed of the types of services that the advisor can offer. Almost all farmers in the sample had a relatively restricted view of the advisor's functions. Attention should therefore be given to defining the roles of government officers so that they can be of maximum usefulness, bearing in mind the problems of the particular area in which they work.