AGRICULTURE RESEARCH GROUP ON SUSTAINABILITY

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Sketch Map Results: Sheep/Beef Sector

Introduction

Part of the first interviews that the social science team completed in late 2004 included farm sketch maps. We asked each person to draw a map, picture or diagram showing the things that were important for the management of their farm. The sketch map activity allowed farmers participating in ARGOS to express their situation in an unstructured, visual way. Analysis of the maps provided the basis for a comprehensive report (available on the ARGOS website) as well as this research note, which sets out the main findings.

Method

In our examination of the sketch maps, we looked at each map, developing a list of features and counting them. Then we grouped the features into categories (see Table 1 over page, in which the frequency of features on Organic (O), Integrated (I) and Conventional (C) farms are presented in categories). As some maps were not well labelled (see Figure 1) we used the interview transcripts to determine what the features were. The transcripts also provided descriptions of and explanations for the features.

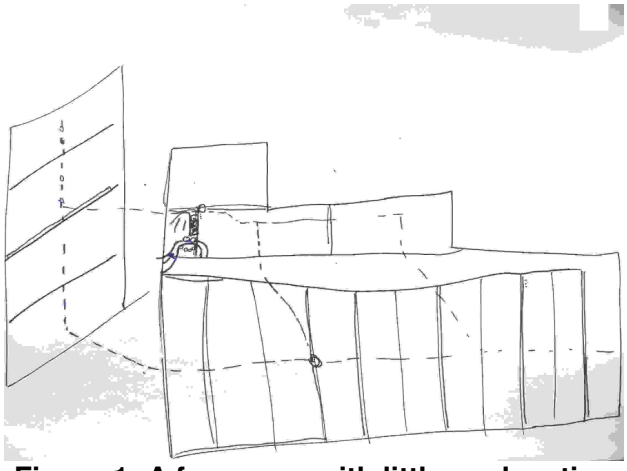

Figure 1: A farm map with little explanation of its features

The frequencies of occurrence in each category of features were analysed statistically to see if there were any differences between the different management systems.

Results: Sheep/beef map features

Analysis of the sheep/beef maps shows that the following features were important to farmers (see Table 1):

- Farm organisation into blocks and fenced paddocks, served by tracks and lanes, infrastructure of farm buildings, houses and stock yards.
- Boundaries - marked by public roads and rivers, neighbours, neighbours' land use, public buildings.
- Biophysical aspects of the region in which they lived – terrain and the way the land lay, other morphological features of the landscape, soil, climate extremes (drought and snow), wind and water sources.
- Mitigation of risks - weather managed by shelter belts, water for storage and irrigation, financial risk spread by growing crops and small commercial forestry blocks.

Figure 2 illustrates how some explanations of features were built into a map drawing.

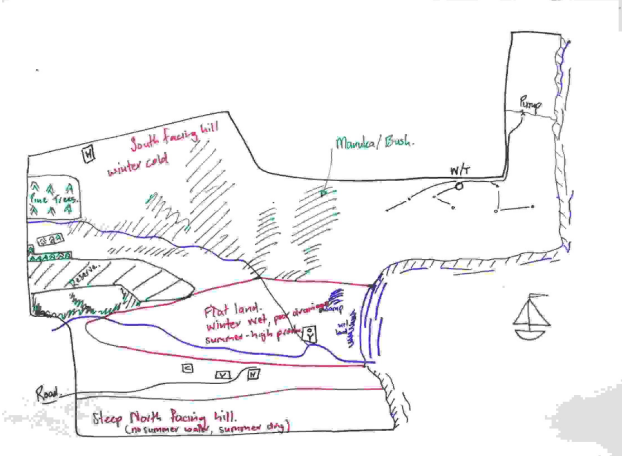

Figure 2: A 'many featured' map

Table 1: Frequency of farm map features

Category	O	I	C	Total
Number of farms	**13**	**12**	**12**	**37**
Spatial organisation	**44**	**36**	**42**	**122**
Boundaries	11	11	11	33
Blocks	8	9	8	25
Paddocks	8	6	9	23
Fences	7	6	9	22
Tracks	3	3	4	10
Grazing	2	0	0	2
Other	5	1	1	7
Wind	**11**	**11**	**15**	**37**
Shelter trees	9	7	7	23
Problematic winds	2	4	5	11
Prevailing winds	0	0	3	3
Buildings	**19**	**16**	**20**	**55**
Houses	10	9	11	30
Other buildings	9	7	9	25
Transport	**12**	**10**	**13**	**35**
Roads	9	9	10	28
Airstrips	2	1	1	4
Bridges – external	1	0	1	2
Driveways	0	0	1	1
Social context	**8**	**13**	**9**	**29**
Neighbours	2	6	8	16
Other	6	7	1	13
Other biota	**11**	**10**	**16**	**37**
Crops	4	5	5	14
Forestry	6	3	5	14
Trees – aesthetic	0	2	4	6
Gorse hedges	1	0	2	3
Landscape morphology	**21**	**20**	**13**	**54**
Slope – terrain	7	9	7	23
Wet land	3	2	3	8
Aspect	3	0	1	4
Other	8	9	2	19
Climate – weather	**4**	**5**	**2**	**11**
Water	**28**	**30**	**26**	**84**
Rivers	8	7	6	21
Irrigation	5	6	5	16
Ponds	3	4	3	10
Pump	2	4	3	9
Water Sources	2	3	4	9
Dam	3	1	3	7
Well	2	2	1	5
Water races	2	1	1	4
Other	1	2	0	1
Biotic context	**8**	**15**	**12**	**34**
Soils	4	7	5	16
Bush	3	3	3	9
Manuka / gorse	0	2	3	5
Weeds	1	2	0	3
Other	0	1	1	1
Stock management	**21**	**22**	**16**	**59**
Stock yards	9	12	7	28
Shearing shed	6	3	7	16
Laneway	3	4	0	7
Animals	2	3	1	6
Silage pit	1	0	1	2
Neighbouring buildings	**1**	**0**	**5**	**6**
Other features	**1**	**2**	**1**	**4**
Total features	**189**	**188**	**191**	**568**

Figure 3 is an example of a 'mind map' depicting in a different way what was important to the management of the farm.

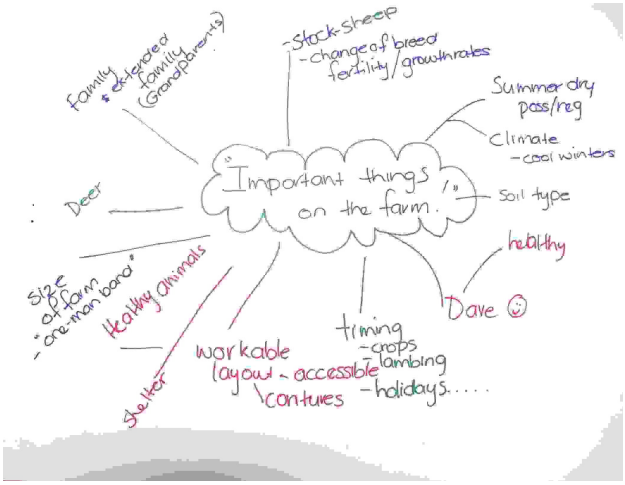

Figure 3: A 'mind map'

Analysis also showed that:

- There were no significant differences in the mean number of features for each management system.
- There were significant differences in the mean number of features for some locations. Sheep/beef farms on flat land (e.g., Dunsandel/Leeston and Ashburton, see Figure 1) had fewer map features than farms on hilly land (e.g., Outram area, Banks Peninsula or Marlborough, see Figure 2).

When seeking to understand what differences there may be between farmers in the different management systems we found that the transcript data from the interviews suggested that conventional farmers thought about soil management in terms of stock management and fertiliser applications while integrated and organic farmers also considered manure crops and animal manure. Organic farmers exhibited a connection to a broad social context and emphasised ecological concerns.

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