

Land Utilization of Some Reclaimed Lands in the Shinjo Basin, Yamagata Prefecture

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雑誌名	The science reports of the Tohoku University. 7th series, Geography
巻 号	3 1
ページ	68-76
発行年	1954-03
URL	http://hdl.handle.net/10097/44789

Some Reclaimed Lands in the Shinjô Basin in Yamagata Prefecture

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In the previous paper, Fukui revealed the backward character dependent on the paddy fields from the view-point of adjustment to the physical environment.⁽¹⁾ And in this report, an analysis is to be attempted on the present state of the agriculture of dry fields. The dry fields were once cultivated only for the purpose of self-sufficiency by the farmers in the Shinjô Basin. But the farms, whose sole independence is upon the dry fields, have gradually increased in number since the reclamation was begun on a large scale at the time of the economic depression before and after 1925. Especially, the reclaimed lands which have remarkably extended after the War have been managed mainly as dry fields.⁽²⁾⁽³⁾ These newly-cultivated lands are observed to be distributed in the parts which are difficult to be brought under good irrigation and also under paddy fields, the surfaces of higher river-terraces and fans occupied a fairly large area of the basin⁽⁴⁾, and they were extensively utilized as grasslands or pastures before.

In this paper, we take up three sections, Shôwa Settlement formed during 1927-'31, Kashiwagi-hara Settlement established during 1947-'48 and Denmark Style farm in 1950 and try some comparison one with another. In the near future, Fukui will publish his comparative study on the land utilization and agricultural management of the reclaimed lands after the War in the Tôhoku region.

I Shôwa Settlement

The reclamation work done before and after 1925 bore a character of an outlet for the surplus rural population caused by the economic depression. In the case of Shôwa, this character can also be discerned, that is, most of the settlers are the 2nd or 3rd sons of the agricultural households.⁽⁶⁾ The settlement

(1) H.FUKUI : On the Adjustment of Rice Cultivation to Its physical Environment in the Backward District. Sci. Rep. Tôhoku Univ. Seventh Series No.3

(2) A. NUMAZAWA, : Geographical Aspect of Reclaimed lands in the Shinjo Basin. Ann. Tôhoku Geogr. Assoc. Vol.6 No.1 1953, pp. 32-36.

(3) K.SHIMIZU : The Process of Exploited Agricultural Managements. The New Geography (Shin-chiri) Vol.5 No.4-5 1951 pp.19-29

(4) *ibid* (1), p.21 Fig.2

contains 77 houses. From 1927 till 1931 successively settled 16, 15, 16, 13 and 17 the households, each year. As the example of 16 households in the first year shows (Fig. 1, Table I), they are composed of the 2nd or 3rd sons of the



Fig. 1 Naive Places of Settles in 1927

households in the hilly districts whose scales of management are smaller.

Each farm owns 5 *tan* of the cultivated land and this area is thought to be above the standard of the scale on which the dry field can be managed in Japan. Most of the fields are placed under ordinary crops, its management being focussed on miscellaneous cereals. The representative crops⁽⁷⁾ are maizes, other miscellaneous cereals, soy-beans, red beans, pumpkins, potatoes, fodder crops, upland-rice, rape-seeds, water-melons, radish and tobacco-plants, etc (Table II). Upland-rice is an important self-supporting food-stuff substituting for lowland rice.⁽⁸⁾ Almost of fodder crops, and about 20 per cent of maizes, other miscellaneous cereals (buckwheat, rye, oats

and, etc.) are raised for their own expenditure as a fodder of their livestock, the other crops are grown for sale. The market is the monocultured district in the prefecture, and the potatoes and maizes are partly transported to Hokkaido as seeds. Some of the squashes and water-melons, and all the eggs and the whole milk are sent to Shinjō, suggesting a faint urban influence of Shinjō.⁽⁹⁾

(5) The Survey Institute of Agricultural Household Economy in the Snowy Districts : A Survey of the Agricultural Management in Hagino Reclaimed Land. The Report Paper No 53, 1943

(6) The soils of this land show a strong acidity and is sterile. Further, too scanty stable manure and insufficient fertilizer caused by the lack of funds prevent the soils from being better. A greatest part is cropped by maizes, soy beans and red beans as the most suitable ones here. Squashes and watermelons do not always in soils, but bring more gain because of their later maturity, for they are sent to market later than other districts. The tendency is generally recognized too in the case of other vegetables in the Shinjō Basin.

(7) However, the farms on the Shiono fan are ill water-facilities, and frequently suffer drought, when they are forced to purchase even their own staple food-stuff.

Table I. Birth and Order in his Farther's Family
(In the First Showa Settlement)

No. of Farm	Birth	Family Relationship before Settled	His Wife Birth	Milch Cows	Cattle	Horses	Sheep	Hen	Family Labour
1	1901	5th son	1901	2	1	1	1	70	4
2	1909	younger brother	1917	1	0	0	0	50	1
3	1905	2nd son	1922	3	0	1	2	70	3
4	1901	4th son	1909	3	1	0	1	20	3
5	1901	younger brother	1904	2	0	1	3	50	3
6	1906	3rd son	1910	2	1	0	1	50	4
7	1903	younger brother	1908	1	0	1	2	50	3
8	1900	younger brother	1907	1	1	0	0	50	4
9	1902	5th son	1602	2	1	0	3	50	3
10	1904	3rd son	1905	2	1	0	2	30	3
11	1903	3rd son	1909	1	0	1	1	50	3
12	1900	foster son	1895	1	0	1	2	20	4
13	1903	3rd son	1904	2	0	1	0	50	4
14	1897	2nd son	1903	2	1	0	2	30	3
15	1902	younger brother	1905	0	1	0	1	20	3
16	1899	uncle	1906	0	2	0	3	30	4
Total				25	10	7	24	690	52

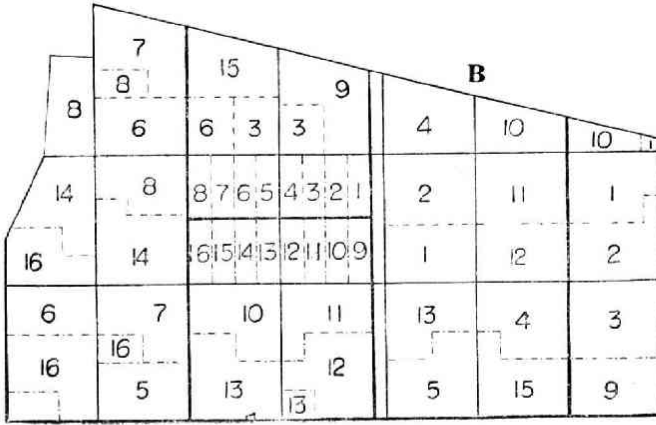
The land utilization of the Buraku No. 1 of Showa⁽¹⁰⁾ is shown in Fig. 2 (Oct. 1952). Each of the farms has in parallel a homestead and barn of 0.5 *tan* in the middle, and a field of 1.5 *tan* is adjacent to them. The other fields are divided into two and arranged apart from considerations of soil-productivity and distance from a homestead. A crop rotation and a field rotation are adopted as the cropping system, but the latter is not carried out under a systematic program. The former is a three-crops-for-two year system, the first crops being potatoes, maizes reapt before maturity for fodder, tobacco-plants or Japanese cantalopes and the second ones, wheat, barley, or rape-seeds. The fields placed under the second crop are only 10 per cent in area. The field of 1.5 *tan* above mentioned is divided into very small patches under 5~10 varieties of crops. The most striking variety of them all is the grape, but this is not a specially promising crop. Sapling culture (larches and cedars), which is thought to be promising has lately diffused a little here. Besides these, mulberry trees are observed to be grown and sericulture to some degree. Furthermore, in order to stabilize the management of the upland farms, milch cows and other cattle have

- (8) Almost all the eggs are sent to Shinjo, and the milk occupies a quarter of the whole quantity gathered by Meiji Milk Plant in Shinjō. The vegetable-supplying circle of Shinjō extends as far as the 30 minutes line of bus service shown in Fig. 1. (Fujimoto's report in Sci. Tōhoku Univ. Seventh Series No.3)
- (9) Those who settled in 1927 forms 16 households.

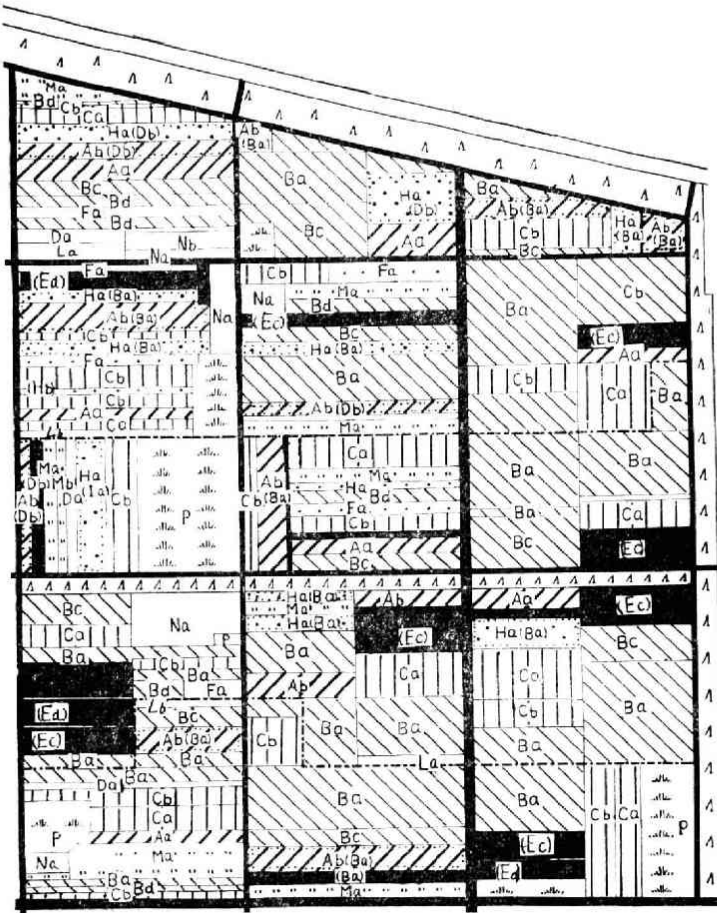
Table II

Name of Sections	Denmark Style Farm	Shôwa	Kashiwagi bara
Total Houses	1	77	13
Milch cow	5 head/farm	1.0 head/farm	0 head/farm
Lavoring cattle	4	0.6	0.3
Horses	2	0.6	-
Sheep	-	1.0	-
Chichen	-	42.4	1
Mulberry fields	- tan/farm	0.23 tan/farm	- tan/farm
Orchards	-	0.16	-
Ordinary crop fields	38.4	47.42	27.1
Fallowed fields	1.4	2.81	6.9
Total	39.8	50.62	34.0
Upland rice	-	3.36	2.04
Barley	-	0.32	0.18
Wheat	-	1.46	0.18
Maize	6.4	11.34	2.58
Indian millet	{ 6.4(Rye)	0.04	-
Other cereals	{ 6.4(Oats)	5.99	0.04
Soy beans	6.4	4.86	8.50
Red beans	-	4.68	4.35
Pea beans	-	0.01	-
Beans	-	0.06	0.32
Sweet potato	6.4	0.86	0.98
Potato	-	3.85	1.46
Taro	-	0.04	0.02
Egg plant	-	0.14	0.32
Cucumber	-	0.03	0.04
Squash	-	4.70	0.35
Watermelon	-	1.71	2.17
Other vegetable fruits	-	0.54	-
Radish	-	1.37	1.46
Turnips	-	0.01	-
Burdock	-	0.01	0.02
Other root vegetables	6.4	0.02	-
Cabbage	-	0.07	0.02
Chinese cabbage (solid headed)	-	0.47	0.01
Other Chinese cabbages	-	0.11	-
Walsh onion	-	0.03	0.14
Other edible herbs	-	0.04	-
Rape seeds	-	2.65	3.85
Sesame	-	0.39	0.39
Other oil crop	-	9.36	0.04
Tabacco	-	0.79	0.54
Pepper	-	0.04	-
Other industrial crops	-	0.04	-
Total	38.4	55.50	31.6
Apple	-	0.04	-
Grape	-	0.12	-
Fodder crops	6.4	3.58	-
Utilization rate of Ordinary-crop-fields	116%	124%	117%

B. Land ownership of Every Farm



- Aa Upland Rice
- Ab Wheat & Barley
- Ba Maize
- Bc Barnyard Millets
- Bd Buck Wheat
- Ca Soy beans
- Cb Red beans
- Da Sweet potato
- Db Potato
- Ec Squash
- Ed Water-melon
- Fa Radish
- G Edible herbs
- Ha Rope seed
- Hb Sesame
- Hc Other oil crops
- Ia Tobacco
- Ib Mat-grass (Rush)
- Ja Apple
- Jb Grape
- La Mulberry
- Lb Clover
- Ma Sapling of larches
- Mb Sapling of cedars
- Na Cedar
- Nb Magnolia hypafeuca
- O Fallowed fields
- P Miscanthus



considerably been introduced in addition to one draft cattle or horse per farm.⁽¹¹⁾ (Tables I and II)

II Kashiwagi-hara Settlement

This is also a reclamation settlement after the War and is situated south of Shōwa reclaimed land. The farms have each managing-scale of 34 *tan*, 6.9 *tan* of which is left fallowed. No livestock is introduced. The chief crops are soy-beans, red beans, rape-seeds, maizes, potatoes and turnips, etc. the varieties being few (Table II). Fallowing, poor varieties of crops and no stock obviously indicate the frailty in management as is common the case with the exploited lands after the war. This is due to the facts that novices in agricultural works were found among the settlers; to the shortage of their funds for management, and also to the unbalance of the program and its practice, and other circumstances.⁽¹²⁾

III Denmark Style Farm

This is situated south-west of Shinjō and is a training farm on which dairy farming is practiced in the strict sense of the word. Its scale of management is 43.24 *tan*, (arable land of 39,707 *tan*, wood land of 1,717 *tan* and 2 residential houses). Fig. 2 shows the land utilization of the farms, the fields are divided into six equal patches, and a field rotation is adopted, the cropping method being a 7-crops-for-6-year one. The forth, fifth and sixth

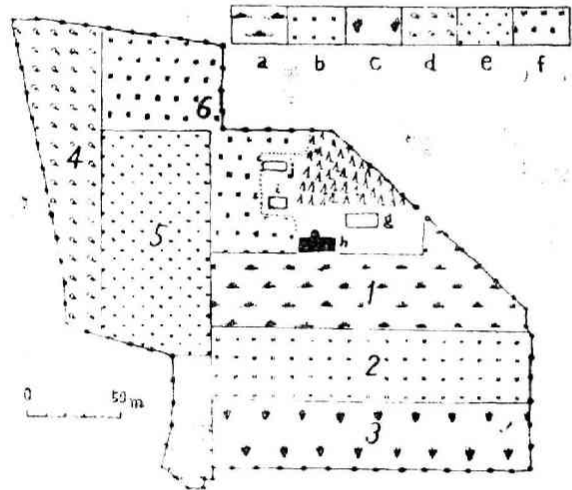


Fig. 3. Land Utilization of Denmark Style Farm

- a. Red clover and Italian Rye grass
- b. Oats, Red clover, Italian Rye grass
- c. Root vegetables
- d. Potato and Rye
- e. Soy bean
- f. Rye and maize

(11) K. TANABE : Progression of Stock Keeping in the Shinjō Basin. Sci. Rep. Tōhoku Univ. Seventh Series No.3

(12) *ibid* (3), (4) The many stragglers and the increasing of their side-jobs are generally recognized in the reclaimed land after the War, as Fukui made public at the 11th Annual Meeting of the Geographical Association of Tōhoku in Oct. 1952.

patches are placed under a crop rotation of 3-crops-for-2-years. Here, all of the crops are raised for a fodder, and the marketing of the milk and calf bring the sufficient profit.

The management is quite excellent as a sample of a typical dairy farm and also shows a fruitful adjustment to its physical environment. But the agricultural system is completely different in nature from that of the traditional Japanese agriculture. Therefore, a considerable doubt is raised as to the leadership the farm exhibits in the Shinjō Basin which is especially of a backward character and is late in agricultural capitalization. In the case of Shōwa Settlement, the cropping shows a higher ratio of miscellaneous cereals for sale, though each of the settlers has almost as large a farm as the training farm and has a milch cow.

IV Summary

The above-mentioned two types of managing upland farms will be able to be regarded to represent the pre-War and post-War ones of reclaimed land in Japan, so far as it goes. The farms belonging to the former type were under much better conditions ⁽¹³⁾ than the latter at the time of reclamation, and have sufficient labour power of their own, as 27 to 22 years have elapsed since the the reclamation (most of the settlers being married just after settled). The stress of cropping is laid upon comparatively many commercial crops with some staple cereals added, and the management is meant to be diversified with dairy farming. Consequently, the type can be characterized by the fairly stability of management the farms making a speciality of upland farming exhibits, in striking contrast to the farms whose sole dependence is upon paddy farming. But the latter type, on the contrary, is characterized by the unstability,

(13) *ibid* (6)

(14) As the foot notes of (7) and (8), the purchase of self-supporting food stuff and fertilizer are the heavy burden on the management, and this fact does not show the completely stable management. Viewed from this point alone the upland farming of the Shōwa settlement is quite different from the commercial upland farming of Tokachi district in Hokkaido. I. Watanabe : Agricultural Region of Hokkaido. The Geography for Social Life (Shakai-chiri) No.20 1950 pp.10-13. and others.

(15) K. IWASAKI : A Plan of Development of Upland Farming in the Cool Region and Hilly Land of Tōhoku District. The Northeast Japan Researches (The Tōhoku-Kenkyu) 1951 Vol.1 No.5 pp.21-29

and the lower stage of development the farms show. Even though they also raise a few commercial crops with some stable cereals just as the former ones do, the scale of their farms is fairly smaller, their agricultural techniques have not yet advanced, their labour power is insufficient, and their scanty funds prevent them from keeping cattle. The pre-War type has acquired its additional stability of management, introducing livestock, especially milch cows, while the Denmark style farm is observed to show the most stable management, adopting a complete dairy farming without any cereals raised at all. Between these two types lies a great gap from the view-point of funds and tradition, and the very gap is the difference between the intensive agriculture of Japan and that of North Europe. From the comparison, the backward character of the farms of pre-War type can not be drawn, but as compared with the commercial farming stressing upon miscellaneous cereals in Hokkaido, it is regarded to show a somewhat backwardness,⁽¹⁴⁾ though, in a fairly advanced stage as compared with the upland farming area (at the same time, a livestock-keeping area) found in the northern part of the Kitakami mountainland.⁽¹⁵⁾ The more detailed comparison will be made in future.