

Overviews of the farm survey 2004 and of the changes of cropping pattern

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1. Introduction

The purpose of this report is to clarify how the cropping pattern has been changed in Adana and Konya, based on the analysis of farm survey in 2004. This is the preliminary work to forecast the agricultural land use in the future. This report is composed of following 4 sections.

- (1) Overview of farm survey in 2004
- (2) Topographical situation of surveyed villages
- (3) Cropping patterns of surveyed village
- (4) Conclusion

2. Overview of farm survey in 2004

In autumn of 2004, we have conducted surveys in the following 4 villages, that is Gecitli, Boztahta, Arikoren and Yaglibayat. Table 1.1 shows the information about interviewed villages.

Our questionnaires are composed of two types. One is the general questions on each village level and the other is the individual questions on each

Table 2.1 Surveyed village

village	Gecitli	Boztahta	Arikoren	Yaglibayat
province	Adana	Adana	Konya	Konya
irrigation state	Irrigated	Rainfed	Irrigated	Rainfed
investigator	Kusadokoro and Kitsuki	Maru and Kondo		

(source) 2004 general information survey

Table 2.2 Surveyed farmers

	Gecitli			Boztahta		
	number of interviewed	average numbers of plots	average size of plot(da)	number of interviewed	average numbers of plots	average size of plot(da)
0-50(da)	10	1.6	19.7	19	2.3	11.2
50-200(da)	12	3.9	27.2	14	5.6	16.4
200(da)-	2	5.5	50.6	0	0	0
total	24	3.1	29.1	33	3.7	14.5

	Arikoren			Yaglibayat		
	number of interviewed	average numbers of plots	average size of plot(da)	number of interviewed	average numbers of plots	average size of plot(da)
0-100(da)	11	2.9	19.9	6	2.4	18.2
100-300(d)	18	7	24	17	4	43.4
300(da)-	5	17	29.3	9	12.7	42.2
total	34	7.1	25.3	32	6.1	40.9

(source) 2004 farm survey

farmers level. The former is answered by the head of each village and the latter is answered by each farmer of each villages. Table 1.2 shows the information of interviewed farmers.

These questionnaires are modeled on the Dr.Tsujii's that were used to investigate the sustainability of agriculture of Nigeria and Tanzania in 1999. In addition, we devised it in the way that Turkish characteristics should be involved

3. Topographical situation of surveyed villages

First we introduce the topographical situation of each village (see Table 3.1 and Table 3.2).

(1) Gecitli

Ceyhan river streams through this village. Irrigation channel from this river has been opened in 1977. Many wage workers have immigrated from South-Anatolia Region to this village since that time.

Table 3.1 Land use of each village (da)

	Gecitli	Boztahta	Arikoren	Yaglibayat
The whole villag	25000	13000	97500	69000
fallow	0	0	3750	15000
cropping area	17000	2750	85000	30000
pasture	33	0	5000	37500
living area	1500	80	2500	1500
forest area	85 *1	10000	60	0

(source) 2004 general information survey

*1 The land of 2000~3000 da will be planted but now, they are bald hills.

Table 3.2 The population and households of each village *1

	1970	1980	1990	2000	2004	
Gecitli	Poputation	1000	1500	2000	3200	4500
	Households	250	300	500	500	600
Boztahta	H.H of Agriculture	250	300	400	500	600
	Poputation	300	500	500	384	288
Arikoren	Households	80	106	106	80	61
	H.H of Agriculture		105	100	78	59
Yaglibayat	Poputation	not clear	600	600		1250 *2
	Households		125	125		275
Arikoren	H.H of Agriculture					250
	Poputation	1810	2010	1700	1800	1800
Yaglibayat	Households	180	225	185	185	185
	H.H of Agriculture	180	225	160	185	185

(source) 2004 general information survey

*1 The data are in farming season.

*2 In addition this,1000 agricultural workers come

(2) Boztahta

This village is surrounded by forest and Ceyhan river runs along the valley of this village. Local government allowed members of the village to use the forest for grazing, because of no government pasture here.

(3) Arikoren

Arikoren is irrigated village. There are about 100 common deepwells, which were installed in 1967. Because the irrigation water comes from these deepwells, there is the misgiving that ground-water level must be deteriorated in near future.

(4) Yaglibayat

Crops are produced based on fallowing system in two years. If wheat or barley is produced on one plot in the first year, this plot should be fallowed in the next year.

4. Cropping pattern of surveyed village

In this section, we will consider the reason why cropping pattern has changed, based on . Table 4.1(the planted area of major crops), Table 4.2(rotation systems), and Table 4.3 (yields of each

crop).

(1) Gecitli

The typical cropping pattern of the 1980's was the combination of wheat as winter crop and cotton as summer crop. But cropping pattern had been changed drastically during the 1990's. The biggest change is the switch from cotton to maize. Planted

4.1 Major crops and planted acreage (da)

	Crop's name	1970	1980	1990	2000	2004
Gecitli	Wheat	6000	6000	6000	6000	6000
	Maize		1000	2000	2000	4000
	Cotton		6000	6000	2000	2000
	Citrus		500	800	1500	2000
	Vegetable	2000	2000	2000	2000	2000
	Grunt-nut			1500	2000	1000
Boztahta	Wheat			2000	2250	2250
	Cotton			1000	100	100
	Grunt-nut			225	100	90
	Sesami			45	40	40
	Sunflowers			0	200	0
Arikoren	Wheat		25000	25000	25000	25000
	Maize				(1)	12500
	Barley		2500	2500	2500	2500
	Dry Bean		(1)	(1)	(5)	1250
	Suger Beat		3000	1500		375
	Chickpea	(3)	(5)	(3)	(3)	125
Yaglibayat	Wheat	12500	12500	8750	8750	8750
	Barley	2500	2500	6250	6250	6250
	Fallow	15000	15000	15000	15000	15000

(source) 2004 general information survey data

Code: Compared to 10 years ago, (1) strongly increase (2) increase (3) the same (4) decrease (5) strongly decrease

4.2 common rotation system

(1) Gecitli

	around 1970	around 1980	around 1990	Recent years
years-per one cycle		2	3	3 not rotation* not rotation*
1st year crops		W	W	W
2nd year crops		C	W	W
3rd year crops			C	C
4th year crops				

* They basically grow wheat and second-maize, but sometimes plant ground-nuts or maize or cotton.

(2) Boztahta

	around 1970	around 1980	around 1990	Recent years
years-per one cycle		2	3	1
1st year crops		W	W	W
2nd year crops		C	W	
3rd year crops			C	

(3) Arikoren

	around 1970	around 1980	around 1990	Recent years
years-per one cycle	4	4	4	4
1st year crops		W or B or DB		W or B or M or DB
2nd year crops		W or B or DB		W or B or M or DB
3rd year crops		W or B or DB		W or B or M or DB
4th year crops		W or B or SB		W or B or M or SB

(4) Yaglibayat

	around 1970	around 1980	around 1990	Recent years
years-per one cycle	2	2	2	2
1st year crops		Wheat or Barley		
2nd year crops		Fallow		

(source) 2004 farm survey data

Table 4.3 Yields of each crop

		planting- households	Proportion of planting- households(%)	Yields(kg/da)
Gesitli	Wheat	18	75%	310
	Maize(1)	4	17%	1063
	Maize(2)	13	54%	716
	Cotton	6	25%	374
	Ground nut(1)	8	33%	321
	Ground nut(2)	5	21%	332
Boztahta	Lettuce	5	21%	1441
	Wheat	33	97%	151
	Barley	7	21%	129
	Watermelon	3	9%	1975
	Cotton	2	6%	45
Arikoren	Wheat	32	94%	421
	Maize(1)	28	82%	783
	Barley	11	32%	362
	Sugar Beet	19	56%	4398
	Dry Bean	7	21%	186
Yaglibayat	Wheat	25	78%	188
	Barley	25	78%	246

(source) 2004 general information survey data

today's area of cotton is one-third of that of 1980 (see Table4.1). This switch was caused by skyrocketing cost of harvesting. Harvesting used to be mainly conducted by migrated workers from South East Anatria in the 1980's. However, the migration has been dwindled recently. This over demand and under supply of harvesting works has caused soaring harvesting cost.

Today's basic cropping pattern is the combination of wheat (winter) and second-maize (summer). This pattern can have farmers earn stable profit, but must make the land's fertility exhausted. In addition, groundnut or vegetable is introduced into the cropping once a few years, because of their high profitability. But strong price fluctuation of these crops makes sometimes farmers loose money. We can say that risk lover farmers are apt to introduce theses two crops. It is also found that some farmers adopt fallowing system for keeping the fertility of their land.

(2) Boztahta

In Boztahta, cotton production has been almost abandoned (Table 4.2). In addition to the increase of harvesting cost, insect pest problems such as white fly damage had farmers give up cotton production.

Only a few farmers whose plot is located near the water point can grow cash crop such as groundnut or watermelon.

(3) Arikoren

Outstanding point of changed cropping patterns in Arikoren is a switch from sugar beat to maize

production (see Table 4.1, Table 4.2). The decrease of sugar beat is caused by water shortage and institutional problems. Decreased ground water level of deepwell made farmers expense more on irrigation cost. This high irrigation cost distracted farmer's motivation to grow sugar beat using irrigated water. In addition, the strict quota production system by sugar processing company has deadened farmer's motivation.

(4) Yaglibayat

Major cropping pattern has not been changed since 1970 (Table4.2), but proportion of planted area of barley increased in the 1990's (Table4.2). It is because of barley's good price in 1990's.

5.Conclusion

In this report, we just overviewed the situation and changed cropping pattern of surveyed village. It is concluded that cropping pattern has been decided mainly by comparative profitability of each crop. In other words, cropping pattern is subject to farmer's short run response to each crop price. On the contrary, the climate change is long run problems that farmer must cope with the long range plan. What we must devise next is to compromise short and long run problems.