

## Farmers' Long Run Perception of Inherent Soil Fertility and Their Responses in Fertilizer Application in Adana and Konya

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Based on our 2003 farm survey data in Adana and Konya, we like to show farmers' long run perception of inherent soil fertility (the soil fertility without fertilizer application) and responses in their attitude for fertilizer application. As Fig. 1 and Fig. 2 show, regardless of irrigation condition yield of wheat and maize in Turkey have had increasing trend

in general. This does not mean the inherent soil fertility has increased in the long run, but this yield increase is caused by the long run increase of chemical fertilizer application as shown in Fig. 3 and partially by the use of new varieties in the surveyed villages. The wheat yield in the irrigated area in Adana has tended to decline as shown in Fig. 1.

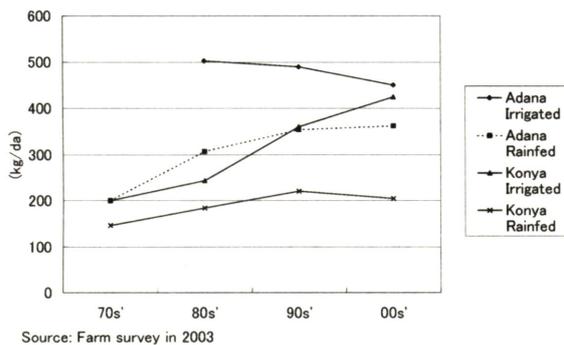
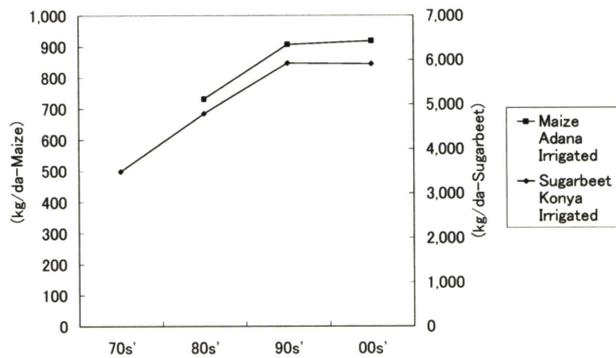
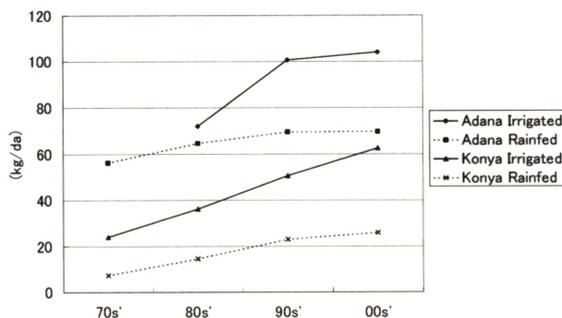


Fig. 1 Change of yield of wheat in Adana and Konya province



Source: Farm survey in 2003

**Fig. 2 Change of yield of maize in Adana and sugar beet in Konya**



Source: Farm survey in 2003

**Fig. 3 Change of utilization of chemical fertilizer in Adana and Konya province**

This is because lower yield and higher table quality wheat variety had been introduced during 90's comparing with the past high yielding varieties there, and the fact that inherent soil fertility there has declined as indicated by the fact that 80% of the surveyed farmers there think that inherent soil fertility has declined and much more farmers there think that more organic fertilizer is needed now

than the share of farmers who think more chemical fertilizer should be applied as shown by Table 1 and Table 2. This probably means that, the farmers in the irrigated area in Adana think that soil quality has deteriorated because of high application of chemical fertilizers for the long time, and now think that more organic fertilizer should be applied there.

**Table 1 Cross-tabulation table of 'Inherent soil fertility' and 'Chemical fertilizer needs'**

(Unit: Number of Answers)

Area	Inherent Soil Fertility	Chemical fertilizer Needs			Total
		Decrease	Same	Increase	
Adana IR	Decrease	1	17	18	36
	Same	0	4	1	5
	Increase	0	2	2	4
	Total	1	23	21	45
Adana RF	Decrease	1	17	23	41
	Same	0	2	1	3
	Increase	0	0	3	3
	Total	1	19	27	47
Konya IR	Decrease	1	0	21	22
	Same	0	1	2	3
	Increase	0	0	5	5
	Total	1	1	28	30
Konya RF	Decrease	1	2	31	34
	Same	0	1	6	7
	Increase	0	0	0	0
	Total	1	3	37	41
Area Total	Decrease	4	36	93	133
	Same	0	8	10	18
	Increase	0	2	10	12
	Total	4	46	113	163

Source: Farm Survey in 2003

**Table 2 Cross-tabulation table of 'Inherent soil fertility' and 'Organic fertilizer needs'**

(Unit: Number of Answers)

Area	Inherent Soil Fertility	Organic fertilizer Needs			Total
		Decrease	Same	Increase	
Adana IR	Decrease	1	7	23	31
	Same	0	1	4	5
	Increase	0	1	1	2
	Total	1	9	28	38
Adana RF	Decrease	2	10	19	31
	Same	0	0	1	1
	Increase	0	0	0	0
	Total	2	10	20	32
Konya IR	Decrease	0	1	13	14
	Same	0	0	2	2
	Increase	0	0	3	3
	Total	0	1	18	19
Konya RF	Decrease	1	2	17	20
	Same	0	0	0	0
	Increase	0	0	0	0
	Total	1	2	17	20
Area Total	Decrease	4	20	72	96
	Same	0	1	7	8
	Increase	0	1	4	5
	Total	4	22	83	109

Source: Farm Survey in 2003

It is also important to note that most of the surveyed farmers in both irrigated and rain-fed villages in Adana and Konya think that the inherent soil fertility has declined in the long

run as shown in Table 1 and Table 2. And these Tables show that many of the surveyed farmers think that more chemical and organic fertilizers should be applied now in order to compensate

the decrease in the inherent soil fertility. But farmers' attitude to fertilizer application is different between Adana and Konya. In Konya most of the surveyed farmers in both irrigated and rain-fed area think that more of both chemical and organic fertilizer should be applied. This may reflect relatively lower application of fertilizers in Konya than in Adana as partially indicated by Fig. 3. In Adana only about half of the surveyed farmers in both irrigated and rain-fed villages think that chemical fertilizer application should be increased. This may reflect the fact that much higher chemical fertilizer application there compared with Konya villages has been done as shown in Fig. 3.

We can conclude that the inherent soil fertility conceived by the surveyed farmers in Adana and Konya has been declining both in irrigated and rain-fed areas. This decline has been compensated by more application of chemical fertilizer and new varieties. But soil quality has been deteriorating probably because of the increasing application of chemical fertilizers. Thus more farmers think that more organic fertilizer should be applied.