Scenario of Analyzing Farmers' Synthetic Total Response to Weather Shocks : Integrating Crop and Animal Production Model through Pasture Use

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This report is the sequel of Kusadokoro's and Maru's. Turkish crop and animal production farmers' inefficient response to weather shocks were clarified in both reports. These fact findings must be highly evaluated. Some problems, however, are involved in these analysis. The most serious one is that crop production and animal production is examined respectively and independently. Both enterprise is closely related in actuality at the viewpoints of climate change as follows(see Fig.1).

1) Complemented integration of crop and animal production

First, both enterprises are complementarily combined by utilizing by-products such as manure and crop residue. In order to adapt the negative influence of climate change to agriculture, this integration must be reevaluated. In order to examine this point, the data of manure and residue input must be collected by farm survey and be reinforced by the suggestions of agronomists and animal scientists.

2) Competitive relationship between pasture grazing and barley feeding

Both enterprises are competitively combined in utilizing government pasture. Animals such as sheep and cows are basically grazed on government pasture. But, if the condition of pasture is deteriorated, animal must be fed by barley. Additional barley production will take the place of wheat production on the farmer's field, that is, pasture grazing and barley production is combined under the competitive relationship. Therefore, if the climate will change negatively for government pasture and the grass condition of it will deteriorate, which is spurred by overgrazing, this competitiveness will be enlarged. In order to analyze this competition, the data of grass condition and barley production are required. In addition to farm survey, we need to ask the vegetation scientists to collect data of grass condition of government pasture.

3) Can Intruded government pasture area that is used for crop production be confiscated as grassland?

The government pasture has been drastically destroyed since 1950, due to the excessive conversion of the pasture to other use. The most serious factor in causing fast destruction of the government pasture is the unlawful intrusion by farmers', that is what we call pasture attack. Pasture attack was the results of inefficient institutional arrangement under the land registry law, so that Turkish government newly enacted the pasture law in 1998 in order to resolve the institutional inefficiency. According to the pasture law, the intruded area of the government pasture is now tried to be confiscated by the government.

Judging from the present reevaluation of government pasture by Turkish government and citizens, the confiscation rule is considered to be intrinsically efficient device rather than any other rules. However, on the case that the crop productivity of the intruded area is decreased by the negative climate change, the confiscation will be executed more difficultly. It is because the attacker will insist on continuing to occupy the area in problem in order to keep his income level. The climate change could exert a bad influence on the policy enforcement. In order to investigate this point, the data of the confiscation of intruded pasture area must be collected by economists.

In the above mentioned way, we will analyze Turkish farmers' synthetic response to weather shocks by integrating crop and animal production under the simultaneous equation model in next stage.

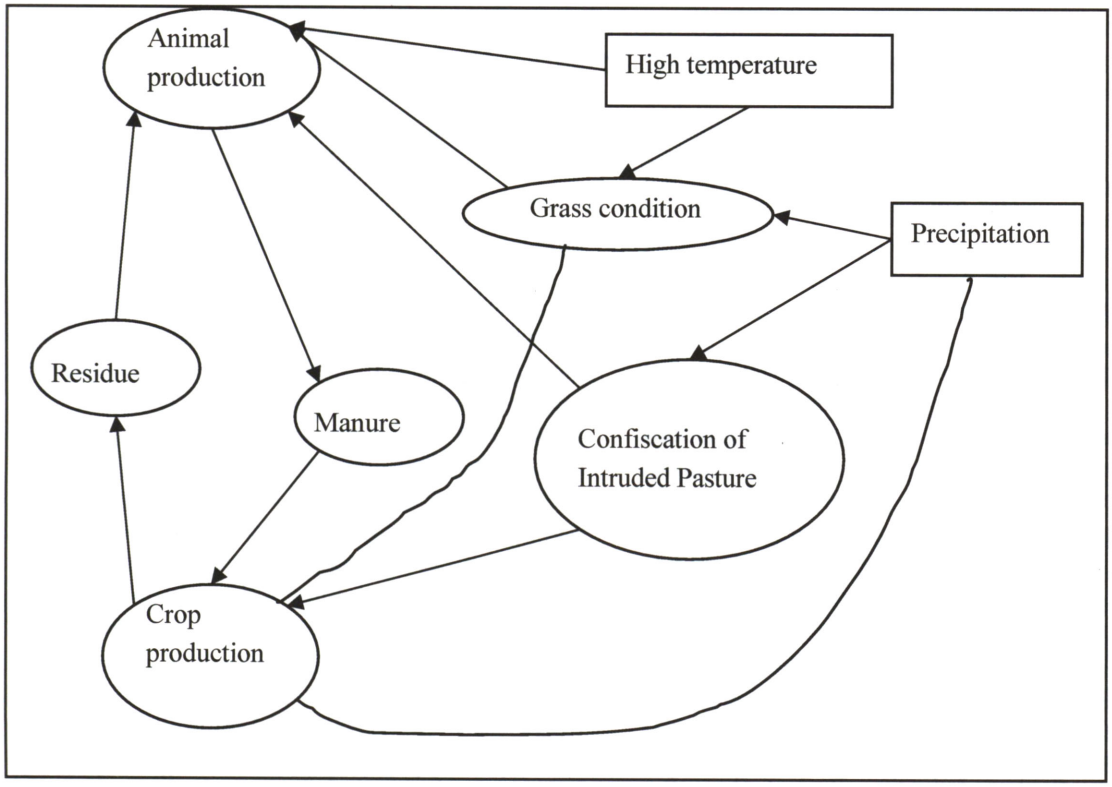

Figure 1 Integration of Crop and Animal Production and Climate Change