

Settlement of transhumant households and merits of livestock keeping in present settled small-scale agro-stockkeeping households in Adana province, Republic of Turkey

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1. Introduction

Transhumant households in Anatolia used to migrate seasonally with more than 200 heads of sheep and goats using transportation ability by camel. The transhumant households moved up to cool mountain areas in summer and moved down to warm lower plains along the Mediterranean basin in winter. Incomes of transhumant households depended almost entirely on livestock products, in addition to salt selling and transportation charges by camel (Matsubara, 1983).

It is from 1960's that this migration pattern has severely changed in Anatolia. Transhumant households sold most of sheep, goats and camel, started to keep a few cattle and small-scale crop fields, and then consequently changed to semi-settled agrostockkeeping households. Although the total heads of sheep and goats in the whole of Turkey has drastically decreased in the last

two decades, cattle's number has steadily increased (Fig.1) (State Institute of Statistics, 1999). Eighty-nine percentage of milk production presently depends on cattle in Turkey (Fig. 1). The total area of crop fields and the total amount of crop productions in Turkey have increased especially in wheat and barley (Fig. 2) (State Institute of Statistics, 1999). This means that cultivation of wheat and barley as rain-fed crops has mainly exploited in broad mountain areas, where were once used as grassland grazing. It is thought that the tendency of settlement by transhumant households with a few cattle and small-scale crop fields is found over the whole Turkey.

In this transition tendency from transhumance to settled agro-stockkeeping, the purpose of this paper is to clarify present merits of livestock keeping in settled smallscale agro-stockkeeping households. This paper discussed 1) income rate from livestock production in the whole income, 2) breakdown of

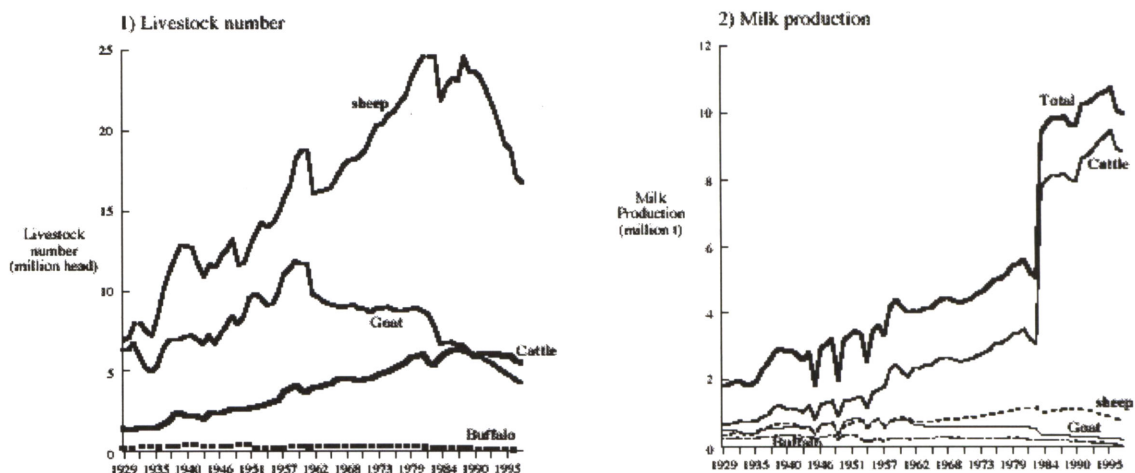


Fig. 1 Livestock number (1) and milk production (2) from 1929 to 1998 in Turkey (from State Institute of Statistics, 1999)

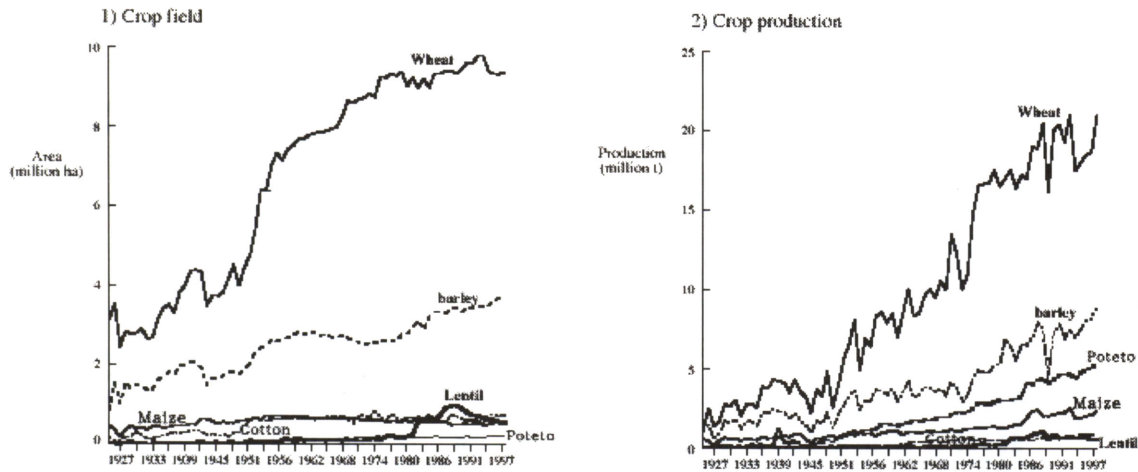


Fig. 2 Crop field (1) and crop production (2) from 1925 to 1998 in Turkey (from State Institute of Statistics, 1999)

income from livestock production, 3) expenditure rate for livestock keeping in the whole expenditure, 4) the balance of income and expenditure, and 5) present situation of subsistence by interview and observation, in settled small-scale agrostockkeeping households.

2. Study area and survey methodology

Field surveys in Adana province were conducted to clarify present merits of livestock keeping in settled small-scale agrostockkeeping households (Fig. 3). Interview and observation for the subsistence on livestock keeping were conducted by visiting 8 households along lower to upper Seyhan river in June of 2004 (★1 - 8). The data of income and expenditure on livestock production were quoted from the results of questionnaire survey of 4 villages in Cukurova plain, Adana province, conducted by the Socio-Economics Sub-Group of ICCAP in August of 2003 (■X-1, X-2, Y-1, Y-2) (Tsuji, 2004). The surveyed numbers of households were 25 in the X-1 village, 26 in the X-2 village, 26 in the Y-1 village, and 24 in the Y-2 village, respectively.

The four villages were classified into 2 large groups by the presence of sheep keeping, such as a cattle and sheep keeping village group (X-1 and X-2) and a only cattle keeping village group (Y-1 and Y-2) (Fig. 3, Fig. 4). It could be supposed that the X village group (X-1 and X-2) is the case of semi-settled agro-stockkeeping households which are on transition stage from migration to settlement,

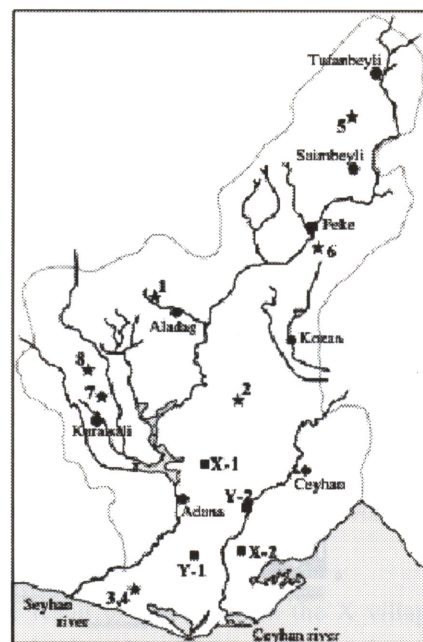


Fig. 3 Adana province and survey sites(★, ■)

and the Y village group (Y-1 and Y-2) is the case of totally settled agrostockkeeping households which more depends on crop cultivation and changed to only cattle keeping. In fact, the average of crop area is 7.97 ha in the X village group and 18.69 ha in the Y village group. This shows that households have more crop field according as livestock keeping depends more on cattle (Fig. 5). By comparing the X village group and the Y village group, the present merits of livestock keeping in settled small-scale agro-stockkeeping households were discussed in this paper.

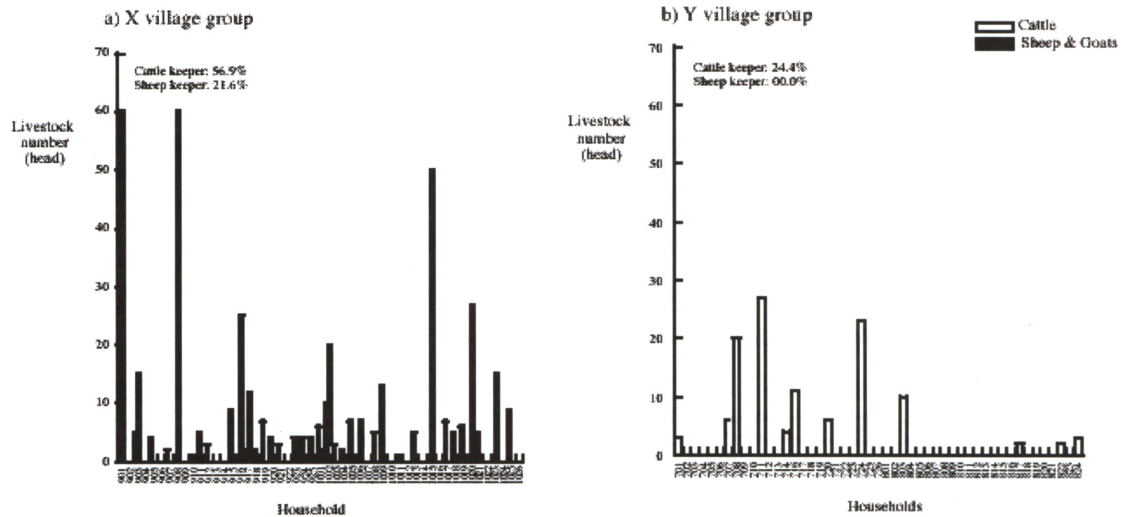


Fig. 4 Livestock numbers of X village (a) and Y village group (b) in Cukurova plain, Adana Province, Turkey

901 - 925 & 1001 - 1026: household codes in X-1 & X-2 villages
 701 - 726 & 801 - 824: household codes in Y-1 & Y-2 villages

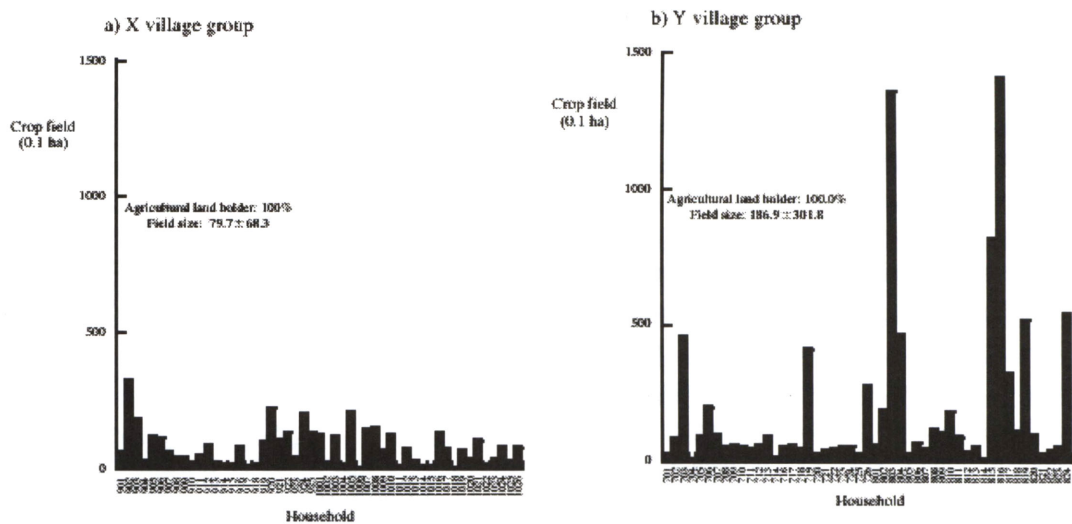


Fig. 5 Crop field of X villages (a) and Y village group (b)

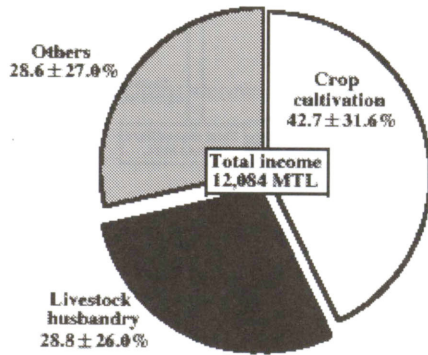
3. Results and Discussion

3-1. X village group: keeping of cattle and sheep with crop production

The percentage of stockkeeping households was 21.6% in sheep and 56.9% in cattle, respectively (Fig. 4-a). It is considered that the main livestock in this group is changing from sheep to cattle. All households had crop fields and its average size was 7.97 ha (Fig. 5-a). Average of gross income was 12,084 million TL (Turkish Lira), of which income resources were 42.7% from crop cultivation and only 28.8% from livestock husbandry in the X village group Fig. 6-a. If transhumant households

start to semi-settle down with crop fields and small numbers of livestock, a main activity in their subsistence assuredly changes to crop cultivation. Additionally, the income from nonagricultural work such as a wage labor counted 28.6% which contributed large amount in the gross income. Although selling of live animal has the value to get large amount money at one time, its income was only 25.9% in the total livestock income (Fig. 7-a). Sixty-eight % of livestock income came from fresh milk. Those mean that the present value of livestock husbandry chiefly consists in the milk production in semi-settled agro-stockkeeping households. In the expenditure for agricultural activities in the X

a) X village group



b) Y village group

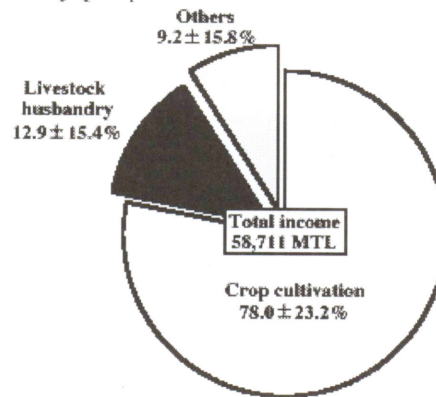
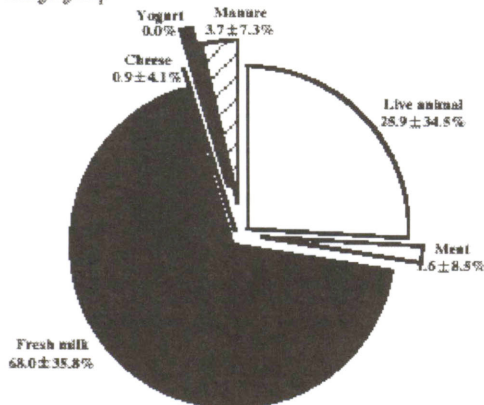


Fig. 6 Income resources of X villages (a) and Y village group (b)

a) X village group



b) Y village group

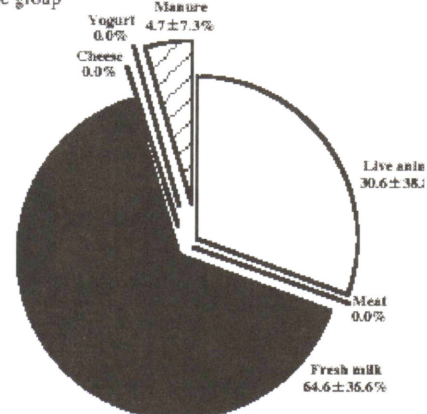


Fig. 7 Breakdown of livestock income of X villages (a) and Y village group (b)

village, livestock husbandry (42.3%) needed more costs than crop cultivation (37.7%)(Fig. 8-a). Since the income amount of livestock husbandry was smaller than that of crop cultivation (Fig. 6-a), it is understood that the profit-earning ratio from livestock husbandry is lower than its crop cultivation. Economic balance of livestock husbandry became loss-making operations; 3,065 million TL income and 3,974 million TL expenditure (Fig. 9-a). The expenditure for purchasing concentrate consists in 58.5% in the total expenditure for livestock husbandry. The households consumed as the almost same amount of expenditure for purchasing concentrate as the amount of income from selling fresh milk. It is clearly understood that the expenditure for purchasing concentrate become major burden on semisettled small-scale agro-stockkeeping

households.

As the result of discussion in the X village, the crop production becomes main activity in the subsistence and it became clear that livestock keeping itself causes economic losses on the transition stage from migration to settlement.

3-2. Y village group: keeping of only cattle with crop production

All households of the Y village group stayed in the villages through the year and those livestock husbandry had already changed to only cattle keeping (Fig. 4-b). The percentage of households without any livestock reached to 75.6% in the whole households. It means that, as the result of settlement, the most of households stopped keeping economically unprofitable livestock and concentrated only on crop cultivation. The average

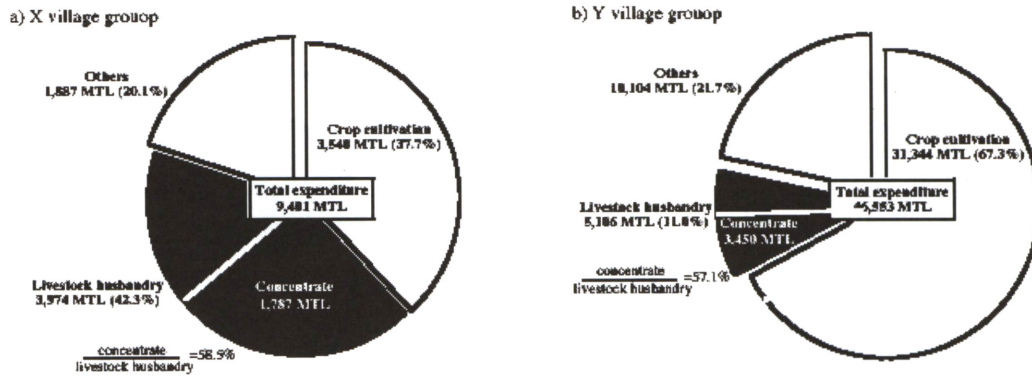


Fig. 8 Expenditure for agricultural activities of A villages (a) and B village group

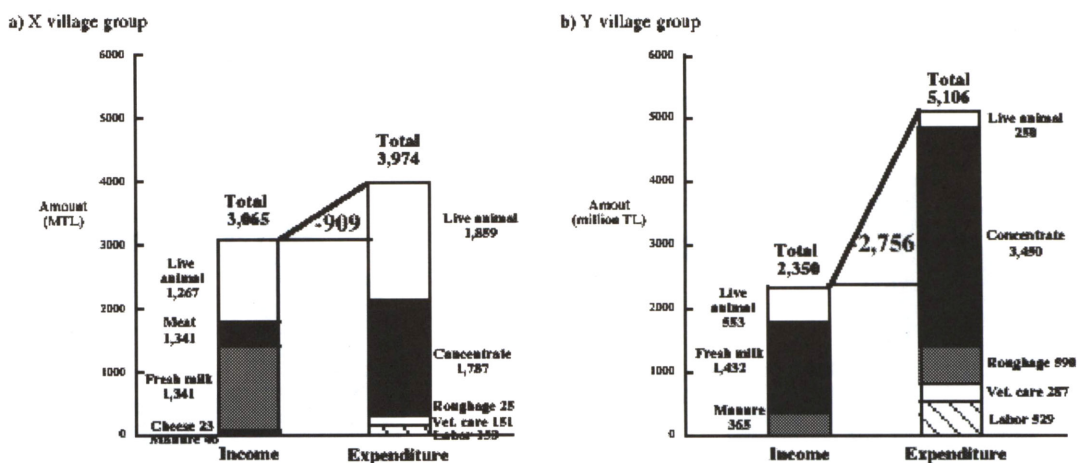


Fig. 9 Balance of income and expenditure on livestock husbandry of X villages (a) and Y village group (b)

of crop area was 18.69 ha in the Y village group, which was 2 times more of the X village group (Fig. 5-b). Average of gross income was 58,711 million TL in the Y village group, which was 5 times more of the X village group (Fig. 6-b). Because income resources were 78.0% from crop cultivation and only 12.9% from livestock husbandry in the Y village group, it is understood that this increase of gross income mainly depended on the increase of crop production. The average income amount of livestock husbandry decreased from 3,065 million TL in the X village group to 2,350 million TL in the Y village group (Fig. 9-b). Sixty-four percentage of livestock income came from fresh milk (Fig. 7-b), which means that selling of fresh milk in the Y village group has the same importance as the case of X village group (Fig. 7-a). Those facts indicate that, whatever crop cultivation become a major activity in the subsistence, importance of fresh milk selling

remains unchanged in livestock income in spite of the decrease of total livestock income. Crop expenditure also increased according to the increase of crop field and crop income (Fig. 8-b). Crop expenditure was 31,344 million TL in the Y village group, which become 9 times more of the X village group. The amount of expenditure for livestock husbandry didn't change largely between the X and the Y village groups. It was also the same in the both of the Y and the X village groups that the expenditure for livestock husbandry consisted mainly of the costs for purchasing concentrate. The total livestock income was only 2,350 million TL and consequently the balance on livestock husbandry counted 2,756 million TL in the red (Fig. 9-b). The profit-earning ratio on livestock husbandry becomes more severe when the subsistence depends more on crop cultivation. In particular, the expenditure for purchasing

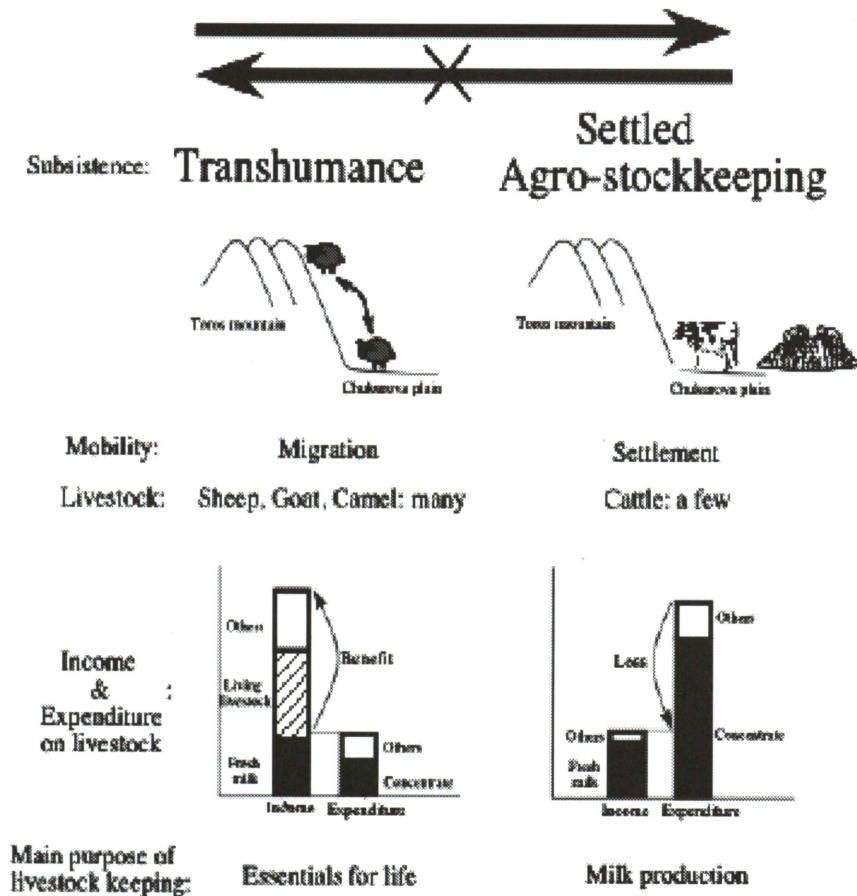


Fig. 10 Conceptual diagram of subsistence transition on livestock holders from past to present

concentrate was 3,450 million TL, which mainly caused the decrease of profit-earning ratio in the Y village group. The livestock husbandry in the settlement means that barn feeding through the year requests more amount of concentrate for cattle keeping and severely causes the decrease of profit-earning ratio in the economic balance.

As the result of discussion in the Y village, it became clear that livestock keeping itself causes economic losses and the deficit amount becomes more sever according to the dependence degree of crop cultivation.

3-3. Present merits of livestock husbandry on settled small-scale agrostockkeeping household

Why do present households keep livestock ? It became clear in this paper that livestock keeping itself causes economic losses. If households secure only economic benefit, it is better that they abandon livestock husbandry. Since households don't keep any livestock for economic benefit, the purpose of livestock husbandry should exist in the out of economic balance of livestock management,

economic benefit.

It is considered by the field observation in the Adana province that the main purpose of livestock husbandry is for "daily diets". Existence of a few cattle brings milk and milk products to stockkeeping households through the year. Milk is consumed mainly in drinking directly, various foods preparing, and processed to many kinds of milk products such as yogurt, butter and cheese. In particular, yogurt becomes an essential diet over Turkey, and only bread and yogurt can serve as a meal. Milk products become more important in the area far from city center where it is rather difficult to access any markets. It is considered that the present merit of livestock husbandry exists on the production of milk and milk products as the resource of daily diets, not on commercial purpose. It is concluded that the transition from transhumance to settled agrostockkeeping, of which crop cultivation become a major activity in the subsistence, results in changes of kind of livestock from mainly sheep and goats to only cattle, lossmaking operations on changes of purpose on livestock husbandry from

the essentials for life spending to the only food resources (mainly milk and milk products) (Fig. 10).

It is generalized as many cases of pastoralists show over the world that this transitional movement is an irreversible oneway direction. It is predicted that causes of climate changes (warm and decrease of precipitation) don't change deeply this irreversible one-way direction. It is the future topic to evaluate how much severely climate changes affect this transition direction.

4. Proposal to local governments

In this transitional movement from transhumance to semi-settled and/or settled agro-stockkeeping, the recommendation of important points to support them are itemized as follows;

- Development of collection systems of fresh milk from local settled small-scale agro-stockkeeping households
- Law arrangement for establishing local agricultural cooperatives
- Rise of wholesale price of fresh milk
- Devaluation of feeding stuff, especially in concentrate
- Development of agricultural by-products as new feeding stuffs

- Establishment of animal bank
- Preserving of common grassland by local government and providing it to local settled agro-stockkeeping households.

Conservation of grassland and forest on the mountainside by local government against disorganized development.

5. Acknowledgments

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6. References

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