

Changes in Agricultural Productivity in Miyi County After Introducing the Responsibility System

Comparison of Agricultural Productivity Before and After the Introduction of the Responsibility System

The system as a whole was introduced in Miyi County in 1980 and the Contract System in 1984. During that year productivity increased. Tables 4 and 5 indicate the annual changes and the average rate of increase, under a number of selected headings within a ten year period (i.e. 5 years before and 5 years after introduction of the *Responsibility System*).

Table 4: Comparison of Agricultural Productivity from 1975-1984 in Miyi County

	Grain <i>jin</i> person ¹	Commodity Grain 0.5t year	Contribution to the State <i>jin</i> person	Commodity pigs head household	Total ² Output in Yuan ³ / person	Cult- vated Lands Mu ⁴ / person
<u>Before R.S.</u>						
1975	729	23020	159	--	188	1.16
1976	646	20660	141	--	160	1.14
1977	673	20180	136	1.41	--	1.12
1978	837	20790	140	1.22	--	1.1
1979	749	22400	153	1.41	190	1.10
<u>After R.S.</u>						
1980	852	25700	175	0.99	198	1.10
1981	809	26520	181	1.64	227	1.10
1982	857	27040	163	1.61	249	1.10
1983	741	27820	187	1.75	258	1.10
1984	866			1.71	318	1.09

1/ *jin* 0.5 kg.

2/ Animal output value is based on the unchanged price of the base year.

3/ From 1975 to 1984 the value of the *yuan* changed from 1.48 *yuan* per U.S. dollar to 2.82 *yuan* per U.S. dollar.

4/ There are 15 *mu* to one hectare.

Table 5: Average Yearly Increase Before and After the Introduction of the Responsibility System (in per cent)

	Total Output of Grain	Grain Output per Person	Total Agricultural Output Value	Output Value per Person
1975-79	0.9	0.68	2.68	0.27
1979-80	10.68	13.75	4.42	4.21
1980-84	0.85	0.41	13.0	12.58

Note : The output value is based on the unchanged price of the base year.

It can be seen from the above tables that the *Responsibility System* has promoted agricultural production in Miyi, considering that, on average, the area of cultivated land decreased. Area of cultivated land is a key factor in grain production and, in this respect, the system is limited. However, it has little impact on overall production, even if the State policy on grain does little to increase grain production; the agricultural output has increased significantly, and the living standards have improved along with State and public income.

Agricultural Productivity and the State of the Environment

Agricultural productivity has a socioeconomic base whereas the environment is dependent upon natural conditions.

The new system brought about a change in the attitude towards investment in the agricultural sector. Contractors are now willing to buy fixed assets and invest in land and agricultural inputs. Table 6, for example, shows the quantities of chemical fertilizer purchased each year. The figures decrease after the introduction of the *Responsibility System* because farmers were not able to buy the quantities they required in State-run shops and resorted to buying from the free market. This is not reflected in the Table.

Table 6 shows a gradual rise in the amount of chemical fertiliser applied after the introduction of the *Responsibility System* based on payment related to output (1982-84). This shows the willingness of farmers to spend money on improvements. Likewise there was an increase in spending on plastic sheets, electricity, insecticides, improved implements and cattle. Expenditure was, in some areas, five-fold what it was before the System was introduced.

Ecological changes have taken place in the agricultural environment. The best examples are the replacement of marginal cultivated land by forests and grazing lands. As a result steep slopes, subject to water loss and soil erosion have gradually recovered their perennial or evergreen plant cover. The situation has been gradually improving since 1982. In 1985, alone, there were 1420 *mu* of regenerated land (0.89% of the total); this included 825 *mu* of forests and 568 *mu* of grazing land.

Table 6: Changes in the Quantities of Chemical Fertilizer Used Five Years Before and Five Years After the Introduction of the *Responsibility System* (Miyi County)

Production Year	Before R.S.					After R.S.				
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
The Amount of Chemical Fertilizers t/yr	3081	2362	2549	5454	6251	5615	6019	7949	8387	11880
N fertilizers t/yr	2577	2091	2257	4662	6190	5303	5724	7401	8015	11648
P fertilizers t/yr	503	272	292	792	61	304	252	427	359	228
K fertilizers t/yr	--	--	--	--	--	8	43	1212	13	4

In the middle mountains, a large number of single crop farms have begun to practice vertical or "multi-layer" agriculture¹. This ensures full use of light and heat and economical usage of limited farmland. At the same time this type of agriculture helps diminish water loss and soil erosion besides regulating the temperature of the soil.

Ecological degradation increased during the collective period because the main task of the Collectives had been to produce grain, and this led to the extension of cultivation on to marginal lands. Slopes, forests, and grazing lands suffered. The promotion of a diversified economy has taken away the pressure to cultivate marginal lands and has provided the means to regenerate the slopes, forests, and grazing land.

Changes in the Agriculture and Agriculture-based Industries

Here, we intend to analyse only the structural changes between agricultural industries and agriculture and changes in the share of cultivation, stock-raising, forestry, subsidiary occupations (mainly handicrafts, processing of natural materials, and building); and fish farming.

Table 7 shows the proportionate decline in the total output value of agriculture after the introduction of the *Responsibility System* and Table 8 shows the increasing share of agricultural industries. This is a result of the development of a market-based agricultural economy.

Table 7: The Changes in Output Value between Agriculture and Industry from 1975-1984 (Miyi County)

Year	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Industry %	25.21	28.45	29.99	30.83	32.28	38.69	41.64	34.61	39.21	39.60
Agriculture %	74.79	71.55	70.01	69.17	67.72	61.31	58.36	65.39	60.79	60.40

It can be seen from Table 8 that Forestry and Fish Farming (fishing, fisheries) were previously extremely poor sectors, and that these have improved. It can also be seen that agriculture has on the whole improved a great deal, although not in traditional cultivation. Horticulture has now begun to play a significant role. Horticulture, unlike grain-farming, requires special skills as well as information and marketing techniques. This has all been made possible by the change in system.

Elements of the Responsibility System Promoting Agricultural Productivity

How did the System work? We have described the possible factors of the System in the passages below.

1. "Vertical Agriculture" refers to a system of plantation on terraces. Various crops are staggered so that one crop can be associated or protected by another and thus more varieties of crops can be harvested by taking advantage of the vertical zonations.

Eliminating the *Dafulong* and "Eating from the Common Pot". Unlike in the Commune Period, one is rewarded according to the amount of work one does, and everyone is obliged to share in productive labour. A spirit of healthy competition has been introduced, and basic-level cadres who would have previously simply given orders have now joined in the work.

Table 8: Agriculture and Agricultural Industries Before and After the Introduction of the *Responsibility System* (Miyi County)
(Output Value in %)

Year	Before R.S.					After R.S.				
	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
Agriculture	60.54	59.62	57.33	61.37	64.15	62.73	67.05	67.63	66.76	67.64
In which:										
Vegetables						0.82	2.45	2.75	4.29	5.50
Fruits						0.27	0.35	0.30	0.49	1.10
Forestry	1.67	0.74	3.65	3.06	1.40	1.65	4.06	6.53	3.29	3.7
Stock-raising	22.41	25.05	25.47	22.08	21.64	22.92	21.07	20.04	18.65	17.53
Subsidiary occupation	15.92	14.50	13.30	14.08	13.11	12.25	7.58	5.44	10.83	10.61
Fish farming	<0.1	<0.1	<0.1	<0.1	<0.1	0.46	0.24	0.34	0.47	0.52

Economic Returns Related to Labour Inputs. Now farmers are in complete charge and are fully responsible for their own productivity. It is up to them to improve conditions, inputs, and outputs throughout the productivity cycle. As a result, tasks that previously took 25-30 days (planting and harvesting) now only take 15-20 days.

Right of Management. The *Responsibility System* gives farmers the right to manage their own land and their own labour. According to the contracts undertaken, they fulfill State purchase and agricultural tax quotas, after which they can diversify their activities and are free to dispose of the surplus crops either through the market mechanism or for processing.

Security: Because a contract is made for several years, farmers no longer feel insecure. Previously, frequent changes in agricultural policy made farmers insecure. Now, they can plan over a number of years and are confident enough to increase their inputs. They have begun to cultivate pieces of land that were abandoned by them in the past and pay a lot of attention to increasing the fertility of the soil.

Introduction of Modern Science and Technology. Vertical agriculture has been introduced (multilayer or stereo-farming) in the mid-mountain areas and has brought about appreciable improvements in the standard of living. Improved varieties of seeds and scientific methods of disease and pest control are being applied.