How I Use Chairman Mao's Philosophical Thinking to Guide Scientific Experiment

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I AM a peasant. I was born in a poor-peasant family and I'm now 47 years old. I had four years of school as a child. In addition to studying Chairman Mao's "three constantly read articles," I have also repeatedly studied Chairman Mao's brilliant philosophical works to arm myself with dialectical materialism and I've made scientific expériments to increase peanut production. In the course of doing this I got rid of the metaphysics in my thinking and overcame various kinds of interference and obstacles. As a result, our brigade has gradually raised the average per-*mu* yield of peanuts from some 200 *jin* to 450 *jin*. The highest is more than 800 *jin* per *mu*. Practice has made me understand profoundly that Chairman Mao's brilliant philosophical thinking is a beacon guiding our scientific experiments.

Turning Failure Into Success

Most of our brigade's fields is in hilly areas and we cultivate more than 4,800 *mu*, of which 2,000 are grown to peanuts. Before we set up the agricultural producers' co-operative, the average per-*mu* yield of peanuts was only 150 *jin*. Although yield was raised after that, it was still low. I was very worried about this and always considered finding a way to raise output. I had begun tackling this problem in 1953. At that time I didn't put Mao Tsetung Thought in command and my experiments failed because I had no idea of dialectical materialism and didn't have a clear orientation.

When we started sowing one year we were hit by drought. There wasn't enough moisture in the soil, and there was no guarantee all the seeds would sprout into seedlings. I'd heard that the Tsaolintien Production Team used the method of digging deep furrows and covering them with only a thin layer of soil in order to make all the seedlings come up and grow well. I got our brigade to use their method. Though it had been effective in Tsaolintien, it didn't work in our brigade and output dropped that autumn.

This saddened me and a fierce struggle took place in my mind. At the time, the leadership had asked me to sum up our experience and draw lessons from it. With this problem in mind, I conscientiously studied Chairman Mao's brilliant works *On Contradiction* and *On Practice*. Chairman Mao teaches: **"Only those who are subjective, one-sided and superficial in their approach to problems will smugly issue orders or directives the moment they arrive on the scene, without considering the circumstances, without viewing things in their totality (their history and their present state as a whole) and without getting to the essence of things (their nature and the internal relations between one thing and another). Such people are bound to trip and fall."**

Chairman Mao's teaching opened my mind and immediately enlightened me greatly. I found that I had made the metaphysical error of imitating others without considering the concrete circumstances. The Tsaolintien Production Team's land is level and fertile. So the people there plant peanuts in rows widely apart. Their method of lightly-covered deep furrows guarantees all the seedlings coming up and growing well. Our brigade is situated in valleys and the soil cover is thin. So we plant peanuts closely with the distance between rows narrow. When we dug deep furrows the soil fell in and buried the seeds. In effect, we were digging deep and covering deep. Though we had good intentions, the result was bad and output fell. Chairman Mao's philosophical thinking helped me find the cause of our failure. My subjective concept did not conform to objective reality. Speaking of knowledge of the objective world, I was still in a blind and passive position.

Chairman Mao teaches: **"If a man wants to succeed in his work, that is, to achieve the anticipated results, he must bring his ideas into correspondence with the laws of the objective external world; if they do not correspond, he will fail in his practice. After he fails, he draws his lessons, corrects his ideas to make them correspond to the laws of the external world, and can thus turn failure into success."** In accordance with this teaching of Chairman Mao's, I made up my mind to use Chairman Mao's philosophical thinking in continuing

the scientific experiment to increase the peanut yield and to turn failure into success.

In Transforming the Objective World, One Should Also Transform the Subjective World

I was determined to find the law of the growth of peanuts so as to blaze a new trail in increasing yields. How to do it? I thought about it day in and day out, but for a long time I wasn't able to get at the essence of it. What was I to do? I opened my copy of *On Practice* and studied it word for word and sentence by sentence. Chairman Mao teaches: **"Whoever wants to know a thing has no way of doing so except by coming into contact with it, that is, by living (practising) in its environment.... If you want knowledge, you must take part in the practice of changing reality. If you want to know the taste of a pear, you must change the pear by eating it yourself."** From then on, I was determined to find the law of the growth of peanuts through practice.

There is a saying in Chinese: "Peanuts yield pods immediately after the withering of the flower." I started my research by first studying the blossoming stage. I selected two clusters of peanut plants to see what happened in that stage right there in the fields. I knew that peanuts blossom at night, but I didn't know the exact time. I stayed with them all night, and after three nights in a row I saw the peanuts blossoming at dawn. I then went to watch them every day before dawn. For data purposes, I put a small label on each flower, noting the date it blossomed.

The blossoming period was rather long, for the large peanuts more than 100 days and around 70 for the small ones. After three weeks of observation, it rained one night and I debated with myself: Whether or not to go to the field. I told myself that since it was raining it didn't matter if I skipped a night. It was just then I remembered Chairman Mao's pointing out that the Marxist philosophy of dialectical materialism has two outstanding characteristics. One is its class nature, the other is its practicality. Its class nature means that it is in the service of the proletariat. If I wanted to use Chairman Mao's philosophical thinking to find a way to increase peanut yield, I had to first have a strong desire to serve the proletariat. In transforming the objective world, one must transform the subjective world too.

The more this went over in my mind, the more I felt my idea of not going was wrong. Comrade Norman Bethune thought nothing of travelling thousands of miles to make revolution in China. Yet I had thought of not going to a peanut field only a quarter of a kilometre away just because of rain. The Foolish Old Man overcame every difficulty to remove the two big mountains, yet I had thought of giving up just because I was faced with a little bit of difficulty. What a difference between thousands of miles and one quarter of a kilometre and many difficulties and one difficulty! This was enough to make me get out of bed and hurry to the field. It was only after I had finished my observation that I noticed that I was soaking wet and shivering. But when I recalled that I'd gone there because I had listened to Chairman Mao and had conquered difficulty, I felt warm all over. Rain or shine, I've worked this way without interruption since then.

The peanut plant grows low in the field. If I stood up, I couldn't watch the ones under observation very clearly. If I sat in the field, I'd crush the other peanut plants. So I kneeled on one leg. I spent more than 60 nights there, putting more than 170 labels on these two clusters to mark the time of flowering. My legs were swollen and my trousers torn, yet I felt quite pleased with my observation. After the harvest, I carefully analysed the data I had collected and something that I had never thought of before was discovered: It took at least 65 days for a peanut flower to mature into a ripened nut and most of the ripened pods, which grow beneath the soil, were borne by the first pair of branches.

This made me really happy. But when I calmly considered it in the light of Chairman Mao's teachings, I felt that this was only an initial discovery from the first year's practice. I should test the discovery in practice again to see whether it was correct or not. So I continued my observation and study the second year, and my findings confirmed the law of the growth of peanuts that I had found the year before. In addition, there was a new discovery. I found that 60 to 70 per cent of the pods were borne by the first pair of branches and 20 to 30 per cent by the second. Only a few pods were by the third, and most of them were empty. The main stem of the large peanut had no flower and no pod at all. Two years of practice divulged this secret of the growth of peanuts and helped me understand some of the interrelations involved in their growth.

Having found the laws governing the growth of peanuts, I applied them in carrying out repeated experiments to increase the yield. To do this, it was essential to get the best out of the first pair of branches. Shallow sowing was preferable, because sowing the seeds deep in the soil would affect the bearing of pods by that first pair of branches which grew round the base. But the area of our production brigade was stricken by drought almost every spring, which made the soil dry. Moreover, the large, oil-rich seeds took a long time to sprout. Shallow sowing would cause these seeds to dry up easily, and this meant not all the seedlings would sprout and increasing the yield would be impossible. Not knowing how to solve this problem worried us very much.

With this problem in mind, I studied Chairman Mao's *On Contradiction* and finally got the answer. Chairman Mao teaches: **"In studying any complex process in which there are two or more contradictions, we must devote every effort to finding its principal contradiction. Once this principal contradiction is grasped, all problems can be readily solved."** Chairman

Mao's teaching enlightened me. I pondered: If we want to increase the peanut yield, we must first of all ensure the full sprouting of the seedlings, without which a high yield would be out of the question. Therefore, the principal contradiction at the time was to ensure the growth of all the seedlings, and the method of resolving this contradiction was deep sowing. Having solved this question, the problem of the first pair of branches buried deep in the soil, which affected the bearing of the pods, came to the fore. Formerly a secondary contradiction, it now became the principal contradiction.

How to solve this contradiction? Again I turned to Chairman Mao's works for instruction. In *On Contradiction,* Chairman Mao points out: "**It** [materialist dialectics] **holds that external causes are the condition of change and internal causes are the basis of change, and that external causes become operative through internal causes.**" I made an analysis: The first pair of branches blossomed early and luxuriantly, with a big potential for increasing the yield. But deep sowing was unfavourable to the growth of the first pair of branches, which meant that their potential could not be fully used. This, I realized, was because of the restriction by the external causes. Following Chairman Mao's teaching, I tried to find a solution to this problem through practice.

While thinning broomcorn millet (*Panicum miliaceum*) seedlings one day with Wang Tien-yuan, an old poor peasant, I asked him why we didn't add soil around the roots when we thinned the seedlings. His reply was: "We sun the upper part of the roots of broomcorn millet seedlings, but add soil around the base of the fox-tail millet (*Setaria italica*) seedlings. If we don't sun the roots of broomcorn millet, we can't get a high yield."

As I went on with the work, I said to myself: "Broomcorn millet tillers, to facilitate tillering, we do not add soil round the roots. Isn't there any similarity between the tillering of broomcorn millet and the branching of peanuts? If we can remove the earth from around the base of the broomcorn millet seedling and expose the part where it tillers to the sun, can't we do the same with peanut seedlings?"

When I thought of this, I went straight to the peanut plots and removed the earth from around the base of one cluster. The main stem thus exposed was so white and tender that water began to ooze out when I pinched it with my fingers. I wondered if such a tender stem could stand exposure to the sun without withering. But then I told myself: "As the saying goes, how can you get the tiger cub without going into the lair?" Plucking up my courage, I removed the earth from around the base of 22 clusters.

Facts later showed that the main stems of these seedlings, instead of withering in the sun, turned purplish as they grew as sturdy as the stems of trees. Thus I found the solution to achieving full sprouting of the seedlings by deep sowing and making full use of the first pair of branches. Removing the earth from around the base of the clusters also helped check the growth of the seedlings, and this was extremely beneficial to the growth of the peanuts and the bearing of the pods. After talking it over with my production team, four small plots were set aside for experimenting with this method. When the autumn harvest was reaped, the yield of these plots was up 25 per cent.

Advancing Continuously in the Course Of Resolving Contradictions

Popularization of this method in our production brigade has, to the joy of everybody, resulted in a big boost in the peanut yield. I deeply realize that it is Chairman Mao's brilliant philosophical thinking that has helped unravel the mystery of raising the yield. Mao Tsetung Thought is the beacon guiding our scientific research; as long as we follow Chairman Mao's teachings and act according to his instructions, we shall always be victorious. In accordance with Chairman Mao's teaching that **"man has constantly to sum up experience and go on discovering, inventing, creating and advancing,"** I carried on with my experiments and succeeded in constantly raising the peanut yield.

Further observation revealed that while each flowering node on the first pair of branches had six or seven flowers, there was only one or two pods. Why so many flowers but so few pods? At first I thought it was because of the lack of fertilizer, so I applied more fertilizer. But too much top dressing in the early stage led to the overgrowth of the main stems, and this in turn reduced the number of pods borne by the branches.

It was at this point that I found the contradiction between the main stem and the branches which, though not apparent in the early stage of growth, became conspicuous after the first and second pairs of branches formed. In the early stage, the main stem was the leading branch. From its numerous leaves it produced nutrients through photosynthesis and helped the branches grow. But when the first and second pairs of branches had formed and begun flowering and bearing fruit, they needed more nutrient. Hence the contention for nutrient between the branches and the main stem which also needed nutrient for continued growth. This had an adverse effect on the bearing of pods by the branches.

How should we resolve this contradiction? I made a serious analysis in the light of the theory of contradictory things transforming themselves into each other, as expounded in *On Contradiction,* and drawing on the experience in topping cotton and melon plants, I experimented on topping the peanut plant. When the second pair of branches had formed, I topped the main stem. Experiments showed that, compared with an untopped peanut plant, the first pair of branches of the topped plant began to flower seven days earlier and each cluster had seven more pods. The next year,

we carried out further experiments in the small plots. Compared to the untopped plants grown under similar conditions as regards water and fertilizer, the yield of topped plants went up about 8 per cent. Thus we found a new method for increasing the peanut yield.

Contradictions are bound to crop up continuously, and we advance continuously in the course of resolving them. In 1967, our area was hit by the worst drought in decades, resulting in a big decrease in output. I felt badly that we couldn't sell large quantities of peanuts to the state. The following year saw another long dry spell. Determined to fight the drought, we worked hard to water the peanut plots. However, most of our peanuts were grown on poor hilly land with only a thin layer of soil. After we watered the plants, the temperature of the soil rose when the sun shone on it, with the result that many pods of the large peanuts formed in the early stage began to rot.

This was a new contradiction which had to be solved. In the light of the truth that contradictory things transform themselves into each other, I set about creating conditions for resolving it. With the help of our technical team, we built row after row of ridges for growing peanuts, and we watered the furrows between the ridges. This prevented rotting. But by building ridges we had increased the distance between the rows, with a corresponding decrease in the total number of clusters on each *mu* of land. The result was that the yield still could not be raised.

At that point, we interplanted large and small peanuts, growing the small peanuts in the furrows because they were better able to resist water-logging and took less time to grow. So we succeeded in working out a method of preventing the pods of the large peanuts from rotting and at the same time not reducing the total number of clusters grown on each *mu*. After experimenting on the small plots, we gathered from each *mu* more than 400 *jin* of large peanuts and over 200 *jin* of small peanuts. Thus we found a new way to conquer both drought and water-logging and get a high and stable yield of peanuts.

From practice I realize that in farming we always have to deal with contradictions, and through scientific experiment we create conditions to make the contradictions transform in the direction beneficial to mankind's cause of revolution and construction. Objective things are always developing; there will always be contradictions and there is no end to scientific experiment.