Recommendations for the Agricultural Development of Afghanistan

(Summer, 2000)
By Dr. A. Wakil

I. Promotion of cherry production,
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   B. Sour
II. Drying Apricots
III. Pomegranates
IV. Introduction of better quality almonds and cultural practices
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VI. Production of strawberries. Processing into concentrate for export
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I. Cherries

A. Sweet Cherries.
The sweet cherry grows well in many areas of Afghanistan. It has a very good market and practically no competition. Its production in localities where it can grow should be encouraged as much as possible. At the present time many farmers are interested to plant cherries, but unfortunately not enough budded trees are available. It is therefore important to encourage production of rootstock and budded trees in private and NGO nurseries. If demand is substantial, it would be worthwhile importing trees from Mashad and selling them to Afghans until such a time as more trees are produced locally. Unfortunately, I hear that mashed cherries are inferior to some others that we have imported from France and the U.S.A.

Sweet cherry is more susceptible to winter freeze injury more than most other fruit. Therefore it is important not to plant sweet cherries in low pockets. Farmers should always select a high place for this fruit. If it must be planted in a lower area, then the young tree needs to be covered with hay or rice straw to protect it from freeze injury during the first 2 or 3 years. After 3 years the trees get hardy.

Some specific recommendations for this tree crop include:

* Commercial plantings should be made close to the markets;
* Mahaleb seeds should be used for the production of rootstocks;
* There are several trees of Mahalab in Wardak, Logar, Ghazni, and perhaps Uruzgan. Much seed can be collected from them;
* If more Mahaleb seed is needed, the easiest way to obtain it is to ask Mr Faizullah Khan in Quetta. Order them early in September. He will supply true to type. Others usually mix seed of a wild bush and sell it as Mahaleb. Faizullah Khan’s home telephone is 081-82-8598.
* Afghans who have access to Iran can import seed from Iran into Afghanistan. One person who can help with this process is Mirza Hussain, brother of Amir Khan in Tehran. He can get things from Iran to Afghanistan. His telephone # in Tehran is 098 21 374 4559. His relatives include Kalai Shada, Haji Asadullah, and Mr Saadig, a former policeman who lives in Meerorayam. Mirza Hussain can buy in Karaj. A better source is Haji Rahman in Mashad (Office Ph. 98975, Home Ph. 94246) This man is from Herat and very active and can send the seed and Dactal. You may work through Haji Inayatullah who is in Lahore (Home Ph. In my notebook by the telephone).

B. Sour Cherries

These can grow in wider climatic conditions compared to sweet cherries. They are not as sensitive to freeze damage, and can grow in areas where sweet cherry cannot grow. Sour cherries command a lower price than sweet cherries, but sour cherry juice packed in paper packages such as are exported from Iran to Pakistan can have a very big market in
Pakistan, and perhaps even India. The United Nations or Afghan Government authorities should consider establishing large-scale orchards and putting up a plant to process sour cherries into exportable juice. Uruzgan which is ideal for both sweet and sour cherry production would be a good site for sour cherry processing plant, because it is too far from the fresh markets, although ideal for cherry production.

II. Dry Apricots

Dry apricots are second in importance after cherries for export, not only to Pakistan, but all over the world. Apricots actually are even more important than cherries in the overall economy of Afghanistan, because the market for this item is much wider than cherries or any other fresh fruit.

Afghanistan’s problem in the area of apricot production is that we do not have a large volume of one uniform variety of apricots which we can offer to the European market or Japan, or elsewhere. The only variety that is available in fairly large volume is the Amiri, which is more of a fresh market variety, and has a good market in its fresh form. It is white in color and a little too sweet for the European taste. All dry apricots marketed in the world are yellow. The Amiri might find a market in the Middle East once Afghan production exceeds fresh market demand.

Therefore it is important to increase production of a suitable drying variety of apricots. So far we have identified the following five varieties which must be propagated as soon as possible. Orchards should also be established in areas which are far from the market or where no good roads are available such as the valleys of the Hazarajat, Upper Uruzgan, Nooristan, Bamyan, and such other places. The varieties identified for drying include:

- Sagi
- Ashtagi of Gulbagh
- Baid Mushk
- Korpa
- Shakarpura

Jaghoris, Dai Murdad, Bamyan, Nooristan, Zabul, and Uruzgan are suitable areas for raising apricots for the dried apricot market. Zabul and Uruzgan are growing a lot of Shakarpura, which has an attractive market in India. This variety should be encouraged in these areas, and technical advice should be given to growers about best cultural methods for producing a high quality product. Somebody should contact dry fruit exporters to India, for example, and find out if there is any problems in the quality of the export. If there is an insect or disease that impairs the quality, FAO should invite an expert to study the problem and train farmers and staff in its control.

In propagating the above-mentioned varieties, it would be better if there are more of Shakarpura, Sagi, and Ashlagi and less of Baid Maishk and Korpa. A ratio of 25% Shakarpura, 25% Sagi, 25% Ashtagi, 12.5 % Korpa and 12.5% Baid Mushk would be
adequate until they find their places in the market. Eventually, only one or two will come out on the top. Experiments should be carried out on drying the above varieties without sulfur treatment. This should be done in a clean area, where there is not much dust blowing, in order to see whether any of these varieties will keep a good color without sulfur. If they do, even if the color is not as good as the apricots treated with sulfur, they sell at a higher price in the international market under the name of ‘natural’ or ‘organic,’ without the use of chemicals. This will not only bring a premium, but will beat the competition.

III. Pomegranates

A considerable amount of pomegranate is grown in Afghanistan, mainly in Kandahar and Tagab. This important crop can be grown only in certain selected ecological zones, with a certain range of climatic conditions. These conditions are not widely available, either inside Afghanistan or around the world. So market demand is high for pomegranates, and it is not currently satisfied. For this reason, it is important for Afghans to identify additional places around the country that can successfully grow pomegranates, and introduce this crop in those areas. This will help to increase the volume of production. In addition, it is important to find mechanisms for controlling the high losses in pomegranates due to insect damage and cracking. This waste fruit could be used to manufacture juice concentrates similar to the process for utilizing strawberries. The same processing equipment can be used for both fruits. See IV page 8.

Priorities for pomegranates include: 1) increasing production; 2) finding mechanisms to control cracking problems in the skins, and insects; 3) finding additional new areas that can also produce pomegranates; and 4) developing processing capabilities that can use all pomegranates including cracked or otherwise damaged fruit, and turn it into an exportable product assuming this product can bring more than the pomegranates taken to the market in fresh form.

IV. Almonds

Afghan almonds sell at half the price of the imported ones. This is because our almonds are mostly grown seedling trees. No single tree produces exactly the same almond as the next. The result is a heterogeneous mixture, which the international market does not accept. Otherwise almonds as well as most fruits and nuts grown in Afghanistan have better flavor than most others grown elsewhere.

The only place where some varieties are selected by local growers and propagated by budding and grafting is Khulm or Tashkurgan. Their Sattar Bai has found a good market in India, and I have heard that it has been exported all the way to the USA because of its unique flavor.

We imported budwood of Nonperial, the most commonly grown variety, in 1992. The variety ‘Carmel’ was imported with it as a pollinator. They have been propagated since and some orchards planted with this variety are now in production in Maroof of Kandahar
and several places in Zabul. Unfortunately although it is the Nonpareil variety, its quality is not the same as the Nonpareil grown in more advanced countries. The kernel is smaller in size and not as full, but rather shriveled. The reason is that almond trees in Afghanistan are not treated like trees elsewhere.

First, no fertilizer is applied to almond trees. Or if it is applied, then it is very little. Secondly, crops like wheat and corn are grown under full-grown trees as well being as intercropped between young trees. Thirdly, even if no crops are grown under the tree, weeds are not controlled, which normally grow abundantly and take up the meager supply of nutrients available in the soil and not much is left for the almond trees.

To improve the quality and obtain maximum income from almonds, it is necessary to control weeds by cultivation or Roundup type sprays, and to apply adequate fertilizer. The application rate should be about 1.5-kg urea per full-grown tree, occupying about 4 x 6-meter square area in 2 – 3 successive applications. In addition to Nonpareil and Carmel, FAO has brought in two good varieties from Europe, ‘Feredol’ and ‘Ferregnis.’ These must also be propagated and grown in addition to Nonpareil. They are supposed to be good quality, and good producers. They may have a little thicker shell than Nonpareil, and therefore might be good for the Indian market, which prefers almonds in the shell, rather than shelled almonds. Nonpareil is not very attractive in the shell, and it is always shelled before marketing.

Another variety that should be produced is Sattar Bai of Tashkerghan. This has a good reputation in India, as well as Pakistan and as mentioned earlier is occasionally exported to the USA, which supplies almonds to practically all the rest of the world. People like the flavor of Sattar Bai. Sattar Bai is a little more sensitive to freezing temperatures in the winter and may not do very well in extremely high altitude and cold regions. Nonpareil and other varieties when grown properly in Afghanistan will have a better flavour than the same varieties grown elsewhere, too, because of the optimum climate, which is hot and dry in summer and cold and dry in winter. The Nonpareil may acquire the same flavour as Sattar Bai when grown under Afghan conditions.

V. Grapes.

A. Grape Production

Grapes are probably the most important fruit crop grown in Afghanistan. Acreage under grapes is greater than any other fruit. The variety grown is mainly the Kishmish, which is much the same as the Thompson seedless. Some of this is marketed fresh, mainly in Pakistan. The bulk used to be dried into raisins, for export to Europe and America. However the long intervention of the Soviet Union disrupted the production as well as the markets for Afghan raisins. All the raisin processing and packing plants were destroyed, all the businessmen left the country, and Afghan products lost their share of the market.
The quality of Afghan raisins, however, continues to be superior. If conditions become normal across the country, and the raisin processing plants are put to work again, Afghan raisins will soon find their proper place in the international markets.

So far, the only major grape grown by farmers is the Kishmish variety. This is because this is about the only one that can be made into raisins. No purely table grapes are grown in any quantity. ADA has imported more than 20 new grapes mainly from America but also Tashkent. Some of them are very good especially ‘Flame Seedless’ and ‘Red Globe’. Both are very good grapes with good shipping qualities, that should have excellent market potential. A red Tashkent variety that is seedless and can be dried into good-sized black raisins is very good, too. These and several others should be propagated and demonstration plantings made of them, so that people and markets become familiar with them. Black Emerald has become a great favourite lately. This must be promoted. Also the Early Perlatté and Aquli.

Kandahar is the ideal province for grape production. These imported varieties were given to the extension staff in Kandahar several years ago. Unfortunately plants were not cared for properly, and no significant result has been achieved yet. I hope that the responsible people there will try to take care of the new grapes and produce a good quantity of high quality fruit in order to test the market. Once a farmer takes a quantity to market, if his sales are good, then other farmers will do the propagation and production without further encouragement. Emperor is a late grape suitable for Kandahar. It picks very late and can store until early winter. It is a good, large size. I am disappointed with the work of the staff in Kandahar on grapes. I hope they will do better in the future.

B. Training Grapes on Trellis

The trellis system or the head system of growing grapes is much better than the ditch system in Kandahar and Zabul. This system should be demonstrated properly so farmers can make their own judgement about which way to go in the future. Extension agents have not paid due attention to this important project yet. A good demonstration is in Lagman. They should copy this elsewhere in milder climate areas.

Trellis systems should also be demonstrated properly in all areas which are not cold enough to warrant covering plants with soil in the winter. This includes such areas as Koh-i-Daman, north of Kabul, Charkh in Logar, Petau in Mokur, and many other places.

C. Control of Common Mildew Disease

Mildew is a very common disease in all grape-growing areas. It seriously lowers both the quality and the net production of grape vineyards. Sulfur dusting is an effective control for this disease, but not many farmers apply it to their vines. Businessmen should be encouraged to import and market good dusting machines and enough dusting sulfur to initiate this process. Sulfur should be dusted many times during the growing season, especially in areas where air moisture is high. The method of application for sulfur is discussed separately. (See section XIII, below.)
If the new varieties of table grapes do not become commercially successful, or if farmers do not adopt the trellis system, or if mildew is not fully controlled, then the Agriculture staff should be blamed and not the technologies. This will be especially true in Kandahar where grapes are an important crop.

D. Identification and Selection of New Varieties

People should also be looking for more grape varieties in different districts of Afghanistan. There are some grapes that have desirable qualities and would have good markets if grown on a larger scale. People do not plant more of them, however, because they cannot dry into raisins and farmers are afraid that if they cannot market them as fresh fruit, they will lose their crop.

It is said that a grape called Augillee in Mazar-i-Sharif is very very early when no other grape is on the market. This should be obtained, propagated, and test plantings made.

Another good grape in Mazar is ‘Taifī,’ which ripens late at the end of Mizan and can be stored all winter long by hanging the bunches. Kandahar has ideal conditions for all varieties of grapes including both early and late varieties, as well as for the application of the trellis system, and control of mildew. Unfortunately, so far I have been disappointed by the performance of the agriculture extension staff [in this province]. I hope they will be more serious in the future.

E. Grape Storage

Several grape varieties can be stored in cold storage for several weeks or months and then marketed in the off season. As it is, as soon as autumn frost comes and grapes cannot be left on the vine any longer, the price of grapes goes up, and before long all fresh grapes disappear from the market.

Storing grapes for off-season use will extend the grape market and would be very profitable both for growers and dealers. Any profitable undertaking can be handled by businessmen as long as they know the necessary technology. At the present time however, fruit dealers and businessmen don’t have any idea of how grapes could be stored.

What is needed at this stage is for one of the NGOs or some appropriate organization to put up a small demonstration unit for storage of grapes. Such storage is similar to the ordinary storehouses where fruit, potatoes, etc are stored. The only difference is that for grapes, it is necessary to have a device that emits a mist of moisture at regular intervals and an S02 cylinder so the storage room is fumigated once a week to control molds.

The cost of installing such a demonstration unit should be between $40,000 to 60,000. Once businessmen see this and take fresh grapes to the market in December or January, they will install large-sized storage facilities using their own capital.
This project can only be undertaken by someone who has sufficient experience and is absolutely confident of the impact of the demonstration unit. Such an experienced person may not be available within the NGO and international community currently assisting Afghanistan. For this reason it might be necessary to invite an expatriate expert consultant to review the situation, and let him give his recommendations.

F. Gibrallc Acid on Grapes

In some varieties of grapes, the berry size becomes much larger when it is treated with gibrallc acid. Thompson seedless or the Afghan Kishmishi is one such variety, and the relatively new ‘Flame Seedless’ variety is another grape that give larger more attractive berries with the use of gibrallc acid. Grapes marketed in the international markets are almost always treated with Gibrallc acid. For detailed directions about how to use Gibrallc acid, refer to “Use of Certain Chemicals in the Production of Horticultural Crops”.

VI. Strawberries

- A programme of strawberry production and processing will be very important for Afghanistan, since strawberries can be produced in most districts and provinces of Afghanistan.

- The flavour of Afghan grown strawberries is superior to any grown elsewhere, which means Afghanistan has a natural advantage for the production of high quality strawberries.

- The crop is labour intensive, and therefore higher priced than most other fruit.

- Afghanistan has idle labour, which would be happy to find work in the production of strawberries.

- Many NGOs are promoting fruit tree planting in Afghanistan. Farmers currently intercrop such newly established orchards with wheat or corn, which are less profitable and more damaging to the newly planted orchards than strawberries. Wheat or corn delays fruit production and stunts tree growth.

- Although no intercrop is good practice in new orchards under Afghanistan’s conditions, strawberries would be a more profitable and less damaging intercrop as the cultivation and root systems are less damaging to trees and the potential income from strawberries is much higher than any other crop that could be grown.

- Under prevailing conditions, fresh strawberries cannot be marketed inside or outside Afghanistan except where they are grown on a small scale, close to big population centers.
• Moreover, strawberries could be processed for export. Dry strawberries have been found in western markets, and concentrates are made for use as flavorings in ice creams and many other products.

• A good step would be to invite an expert through the Untied Nations or other channels and let him see what is practical. Strawberry concentrate is likely to be fairly easy to manufacture and will have a wide market.

Unfortunately, among the organizations involved in the rehabilitation activities for Afghanistan, most do not have the vision necessary to implement strategic programmes such as this. At the same time it is obvious that Afghanistan cannot change for the better from the small-scale pilot projects currently being implemented.

Although this programme of processing and exporting strawberries may sound big and expensive, in fact it is not. One demonstration unit and the processing plant may cost $20,000 to $40,000. With all the other facilities it won’t run over $100,000. If successful then the private enterprise will take it over.

VII. Introduction of New Varieties of Plum

Recently some new varieties of plums have been developed. They are generally called “Pluots”. They are large in size, about the size of a medium sized peach, very attractive in colour and with good shipping qualities. This will have a good market, as well as other fruits mentioned in this report. They sell at higher prices than most other fruit in Americans stores now. Another good aspect of these may be their chilling requirements, which are lower than apples, etc. They will grow under wider climatic conditions and in warmer areas such as Nangarhar and especially Kandahar. They are mostly patented, but we have imported about $2,000 worth of these trees into Afghanistan this year. A few of these varieties are planted in the six provinces under ADA’s programme. These must be propagated and other varieties of these plums must be imported. Try not to lose the only two trees of each variety which we have planted in 6 provinces under ADA.

VIII. Introduction of New Varieties of Apricots

There are many varieties of apricots around the world, but almost none are comparable to some we have in Afghanistan. But recently the international markets have developed some large size apricots with a red blush on one side and yellow on the other. Even these are not as good as some of our commercial apricots. However they have two aspects which are interesting for us, and therefore should be propagated and used in special areas.

a) They seem to have lower chilling requirements and therefore grow in lower elevations where our commercial varieties cannot grow.

b) Most of them are very early varieties, which catch the early market when our current varieties cannot compete.
Again most of them are patented, but we have taken some under research agreement this year, (2000), and there are a few trees in most of the provinces under ADA programmes. They should be propagated, and markets tested with them. They should be cared for carefully and not let them get lost.

IX. Introduction of New Pear Varieties

Pears in general have a very short shelf life. Therefore a variety that can be stored for a longer period of time is in high demand. Afghanistan has a variety called “Yakh Naak” which is very much liked by the market. This variety should be introduced to new areas, and its production should be increased. At the moment demand is not still satisfied by the current production.

Another pear which is apparently unique in flavor with nothing like it anywhere else, is called “Balkhi”. It grows in a village called “Kishnabad,” in the District of Andrab. This is liked by all who have tasted it. This should be propagated in nurseries and introduced to many suitable areas. It will have a good market demand. There are good varieties in Jurm as well which should be studied and selected if of good quality. Bringing budded trees of these varieties will be easier but bringing budwood to bud may not succeed. However, if no budded trees are available budwood should be budded in the area where such varieties exist in order to bring the following year in case buds fail.

X. Need for Horticulturist with International Experience

Afghanistan is fortunate in producing some of the highest quality fruits and nuts in the world. Before the Russian invasion in 1979, Afghanistan’s fruits and nuts brought premium prices in world markets. With a proper approach, it can do it again. But there has to be somebody with wide international knowledge of varieties, production, markets, etc. in order to provide direction to Afghan farmers. All Afghan horticulture production should be directed towards export and for this reason experts should determine the varieties and volumes to be produced.

The Afghan population at the present time does not have a horticulturist with international experience who is available and willing to guide the Afghan farmers. Therefore I believe it is necessary to employ a suitable expatriate, or arrange a consulting agreement with a reputable firm that deals in horticulture. One individual who could carry out this function performed a consultancy for FAO 1998. His name is _______ Doolan. He has the necessary experience and also has become familiar with Afghan horticulture. He should preferably be a full time employee to advise NGOs and others engaged in Afghan horticulture. If he lacks knowledge of specific international markets, then there can be a small contract with a firm for that aspect of the development.

One company that could carry out the necessary work is High Value Horticulture, (HVH) based in London. They had a contract with Development Alternatives, Inc, and prepared an extensive report on horticulture opportunities in Afghanistan. They have had a part in the Pak/Swiss Horticulture development in the Swat River Valley. They are still working
on projects in India, and India seems to have benefited a great deal from their involvement. It looks like the success of India in growing grapes on a fairly large scale is due to the involvement of HVH.

There is also an organization in _______ of England called Appropriate Technology.” They might also be suitable for the work in mind.

Employment of such an expatriate or an agreement with such a firm is too expensive for any single NGO. At the same time, such a person or firm could advise and direct all organizations involved in Afghanistan’s horticulture development. For this reason, it seems reasonable for all interested NGOs to join together to employ such an expert and use him jointly. Perhaps such a person could be recruited by FAO and given responsibility to guide Afghan farmers in the right direction. His terms of reference should be determined by the Afghans and I hope with reference to these recommendations.

Whoever is given this responsibility should read these recommendations for the goals to be set for development in horticulture.

XI. Use of Fertilizer in dryland wheat

Wheat needs a good amount of phosphorous in the initial stages of its growth. This phosphorous which is needed for normal growth and development of the wheat plant encourages root growth as well as resulting in a larger and deeper root system for the crop. The second element needed by wheat in addition to those already present in the soil is nitrogen. In irrigated wheat, which can take up the maximum amount of fertilizer, the rate is one bag urea and half a bag of diammonium phosphate or equivalent per one jerib. This applications rate produces 100 seers or more grain per jerib.

Dryland wheat, which depends only on rainwater, cannot take up this amount of urea. The crop will burn if one bag of urea per jirib is applied, but it can use half a bag of phosphate because it does not burn like nitrogen and is taken up mostly in the early stages of plant growth when moisture is available in the soil. Moisture is available even in dry land soils during the first one or two months of plant growth. Wheat can profitably use phosphorus as well as nitrogen during that time. This nitrogen also makes plants grow larger above the ground, as well as producing larger and deeper root growth. Such a larger plant has access to larger volume of soil, and so can pick up more water and nutrients, which enable it to produce more grain. However application of nitrogen (urea) to dry land wheat has to be smaller in proportion to the amount of rain. Since less urea is used in dry land wheat, resulting in less grain yield, therefore less phosphate has to be used to keep the operation economical. However too little phosphate is mostly fixed by the lime in the soil and therefore any less than a certain amount (estimated to be about 18 kg per jirib) will not be effective at all, and might as well not be applied.

To summarize, for fertilizer in dryland wheat areas, it is possible to suggest the following:
1) An appropriate agency should undertake a well designed experiment on the use of different levels of fertilizer on dryland wheat under the supervision of a qualified agronomist, to determine the optimum value of fertilizer application to dryland wheat. Ministry of Agriculture records should also be checked to see if such information is already available.

2) At the same time, extension agents should establish demonstrations in different locations using one or two low-level applications of fertilizer to dryland wheat—say about 18 kgs of a 46% phosphate and 15 kgs urea per jirib, applied all at planting time.

3) If tests and demonstrations show an increase in yield, then this information should be disseminated among farmers as soon as possible.

XII. Introduction of Mechanization in Dryland Wheat Areas and Areas like Uruzgan

Farming dryland wheat depends entirely on nature. Land is cultivated and wheat sown whenever a good rain comes. The ownership and area each farmer has to plant is much larger than irrigated wheat because yields are much smaller. This means that the farmer should be able to cultivate a lot of land in a short time, or he will lose the moisture the rain has brought. This is very difficult with pairs of oxen, (which are not available any more), and the single furrow wooden plough. Machinery is especially important in farming dryland wheat. With machinery, farmers can plant many more jiribs in a much shorter time. Therefore it is important to find ways to introduce more mechanization in dryland wheat areas. It is not only the planting of wheat that must be done more efficiently. It is also important to cover more jiribs in a shorter time, and also to improve the efficiency of harvesting, threshing, and winnowing.

Considering the economic situation of the dryland farmers, it would be difficult for each farmer to own the necessary machinery for his individual piece of land. But it is attractive for local individuals or people from other areas who have capital to invest in machinery. They could make good profits in custom work in dryland areas or areas like Uruzgan where land ownership is large and there is a need for tractors, harvesters, and threshers.

Emphasis, therefore, should be on educating and encouraging businessmen to go to dryland areas with farm machinery. Many people with money just don’t know what they can do to make a profit. If detailed information is given to them about how much they can plant or harvest or thresh in a day and what they can charge, they will soon see the profit and jump in.

In many rainfed areas in the world, a seed drill (sometimes specially designed) has made a lot of difference in the production of wheat. This implement plants seed deeper and at a uniform depth where all seed germinates and comes up uniformly. If the drill has a fertilizer attachment, this is still better, because less fertilizer can be used much more efficiently with better results on production. Saving in seed rates can be achieved also,
because every seed sown by drill germinates and makes a plant while in broadcasting seed, considerable amount gets planted either too deep or too shallow. The stand also is not uniform, with crowded spots and gaps. The saving in seed and the better stand can soon pay for the price of the drill.

In short, mechanization of dryland farming is important in increasing overall wheat production. This should be encouraged and introduced in whatever way possible.

XIII. Sulfur as an Important Input in Afghan Horticulure

Afghanistan’s soils are unfortunately high in calcium and therefore have a high pH, mostly 8 and even higher. Plants generally do well in a pH of 6.5, while certain crops like potatoes want a pH lower than 6.5

Sulfur is a product, which can lower soil pH for long periods. If it can be made available at a low price for farmers to use in large quantities, Afghanistan would be able to produce more per unit of land.

To a laymans’ eyes, there appear to be many potential sulfur mines at least judging by the colour of some rocks and soils in different localities of the country. Another source of sulfur could be the natural gas, which normally is refined by taking its sulfur out as a by-product.

I think an effort should be made to find sulfur, process it if necessary, and then make it available to farmers at cost price. The major cost of sulfur would be its transport. At least it can be used around the source of supply, which will be helpful to farmers in the immediate vicinity of a good source for sulfur. For many crops it will be worthwhile paying good price for its usage.

XIV. Vegetable crops

A. Potatoes

Potatoes grow well in many areas of Afghanistan. The high altitude and cool weather suits potatoes. The market for potatoes both inside Afghanistan and Pakistan is good under normal conditions. However like all vegetable crops, potatoes bring good prices one year and are overproduced the next year, with not much profit for farmers.

Two things can be done to avoid gluts in alternate years. One is to try to establish a contract with some neighboring country for the sale of a certain quantity. Russia and some of the East European countries maybe interested in this. This would take some of the pressure off the market.

A second option would be to install a unit for drying and powdering potatoes to use as mashed potatoes. The dry power sells in paper containers, which can then be reconstituted to make mashed potatoes by adding water to the powder and heating it.
This product can be used domestically during shortage of fresh potatoes and can easily be exported.

B. Tomatoes

There is a great demand for tomato sauce everywhere, in Afghanistan, Iran, Pakistan, and elsewhere. Tomatoes are cheap in the peak season and get to be very high priced in the off season. There seems to be attractive profit in making tomato sauce for the wide markets. It would probably be very profitable for a person with capital to invest in a plant for manufacturing tomato sauce, locating it in an area with good potential for the production of tomatoes. Some important criteria for this decision include such things as whether there is a long growing season, the availability of land and labor, etc. People say Mazar Sharif produces good tomatoes. Uruzgan will too, and it will be good for generating employment among local people. Dried tomatoes has a market around the world too and Afghans can do this easily.

C. Onions

Onions produce abundantly in Afghanistan. Like tomatoes and potatoes, onions are in demand everywhere. All housewives use them every day. Again the problem is that there is a good market one year and a glut the next. Like potatoes, there should be a contract for export or some kind of processing. Drying is another option. Dried onions have a market.

Many new varieties of onions both hybrids and open pollinated have been developed around the world. These must be tested and introduced. Even if a hybrid variety proves to be more economical, owing to its higher yield, it should be adopted.

Two more things are important in growing onions successfully. One is mildew, which invariably attacks onions. This has to be controlled if maximum yield is to be obtained. The current remedy is to spray Redomil every 10 days or so, until the danger period is over.

The other important thing is to use Dactal for controlling weeds in onions. Unless Dactal is used, onion growing cannot be very profitable, because a lot of labour goes into weeding. More importantly, no farmer can grow more than a small area because he cannot weed more than this. So commercial scale production of onions is not possible without the use of dactal.

Dactal which is powder that is sprayed over land planted with onion seed, and then either sprinkled with more water or irrigated very lightly in order that the Dactal will go into the soil only about 5 – 8 cms. Dactal spraying is done after seed is sown, and covered with soil or manure. If onions are hand planted, the Dactal is sprayed after planting and before irrigations, which should be very light. The rate is 15 – 20 gms per litter, at a rate of one liter per 20 sq meters, or 1 gm per square meter area of land.
To summarize the three vegetable crops discussed above are worthwhile considering. Maybe some expert consultant can be invited to make recommendations before embarking on active projects.

XIV. National Level Development Priorities

These major infrastructure development projects are beyond the means of businessmen or NGOs. Instead, the central government should pay attention to these possible projects. They are all very important for the country in many respects. [In important ways these national-level priorities involve the inter-relationship of energy sources and agriculture.]

Soil needs a certain amount of organic matter in order to grow satisfactory crops. Plants normally have some refuse that should be recycled back to the soil like fallen leaves in autumn, the prunings from trees, dead roots, and all the hay or forage that animals eat and discard as dung. Then as this organic material decomposes, the process of aeration and water filtration give to the new crop all the major and minor minerals, that were taken up from the soil by the previous crop.

Unfortunately in Afghanistan all heating and cooking is done by burning wood and plant material, including all the animal manure. Women sweep the fallen leaves from under the trees in the autumn cleaner than they sweep the inside of their houses. The Afghan soils therefore are almost devoid of organic matter. The fertilizers we apply without having some organic matter in the soil does not give us the same benefits.

And of course trees and fuelwood do not grow quickly. With the increasing demand for fuel, no forest trees or vegetation of any kind will be left after some time. Afghanistan will be a desolate place—a wind eroded desert. This should not be allowed to happen. Very sadly, we see even the small brush-like sage camel thorn and the like is harvested from the barren land between Kandahar and the Pakistan border and sold in chaman of Pakistan. Tractor trailer loads go every day.

A. Natural Gas

To reduce the pressures on the Afghan environment, an effort should be made to develop any natural gas reserves, which can be found, and use this to manufacture approximately 500,000 tons of urea per year. Then the balance should be distributed to the residential areas for domestic use, in order to allow the dung and the leaves and other plant material to be recycled and go back to the soil as compost.

B. Development of Electricity

I don’t have all the information about possible economic and development opportunities in Afghanistan, but I know there are resources that can be developed and used for heating and cooking. The Kajakai Dan on the Helmand River, for example, can provide a substantial amount of power if it is properly distributed. In a similar manner, the Kunar River, although it does not have land to be irrigated downstream below the potential dam
sites can also produce substantial power. Once Afghanistan’s needs for power are met from this source and others, then any surplus can be sold to Pakistan.

The economic feasibility and justification is often done on the basis of only cost of the electricity and not on its wider impact in terms of saving Afghanistan’s environment. Developing alternate energy supplies like electricity and natural gas will also permit the country to increase its total crop production on every jirib of agricultural land, due to the increase in organic matter that can go back into the soil. For this reason, I think gas or electricity must be developed at any cost. This will help to preserve Afghanistan’s future.

C. Manufacturing Urea

Urea is the fertilizer that is needed above all else. No farming under present circumstances can be successful without the use of Urea. The 100,000-ton plant that the Russians built in Afghanistan has become obsolete and its capacity is lower than the present demand in Afghanistan. My understanding is that a minimum economic unit is 500,000 ton per year capacity. If so, a 500,000-ton urea plant should be installed as soon as possible. The eventual consumption of urea in Afghanistan might reach 500,000 tons after some years, but in the meantime urea has a good international market, and any surplus can be sold at good prices to nearby countries.