

Dr. Raymond Hooker, DP

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R. B. Scott, DP

Variations in adoption of Mexipak wheat and fertilizer in the upper and lower Helmand

The trip to the lower Helmand, Char Barjak (around the first of April), and a discussion with the local Baluch Khan who more or less owns the area, suggested some basic hypotheses on reasons for, or at least basic differences in, patterns of adoption of the Mexipak wheat/fertilizer agricultural package in the Helmand. I am using the term "Mexipak" in a generic sense for high yielding varieties rather than for any particular variety. This information, superficial as it is, combined with what we already know of changes in the upper Helmand, leads to some tentative conclusions.

The Baluch Khan of Char Barjak stated that Mexipak was not planted in his area at all and that fertilizer was not used, despite the fact that there is an AFC fertilizer outlet in Char Barjak bazaar. The reason given was that no one (extension) had been down into the area to explain the uses of the package. Given that during the conversation this Khan made references to Nad-i-Ali and Marja, asked about the present status of the Shamalan Project, owns a Jeep Wagoneer (and recently made an offer to buy a second from a departing BuRec technician), frequently comes to Lashkar Gah, where he has a brother (wealthy), living, and where he sent his son for a high school education, it is unlikely that he is unaware of the advantages or methods of use of the Mexipak/fertilizer package. This is a very wealthy and informed individual in his early middle years.

In discussions with Mr. Hicks (AFC area representative), it was confirmed that in the lower Helmand fertilizer did not sell. He tentatively generalized that as you move down the Helmand into the larger and larger Khan holdings, the consumption of fertilizer lessened.

Based on our sources of data, there are several ways of examining the switch to Mexipak by area. Unfortunately, in using the various sources, while the same point can be made, hardly any of the sources are useful in giving exactly comparable figures. I will give only a selection of areas to make my point.

According to the 1970 Farm Economic Survey (FES), the percentage of farms in the sample that had adopted the use of any Mexipak and fertilizer by area were:

	Percent ¹ Mexipak Using	Avg Hectares ¹ per Farm	Percent ² Farms Using Fertilizer on Wheat
Marja	63	1.0	65
Nad-i-Ali	43	.8	50
Girishk	30	1.0	18
Shamalan	18	.1	15
Darwishan	10	.3	13
Khanishin	0	-	3

1. Table 15, p. 37
2. Table 16, p. 38

This table suggests that the newly-settled areas are more innovative than the indigenous inhabitants of the region. The possible combination of better agriculture services to these areas over a period of time, plus a possible break with regional traditional orientations, from whatever origin, which is not an uncommon phenomena among resettled peoples, could be responsible.

The other areas are arranged by location, with Girishk being the most northern area and Khanishin being the most southern. Other areas not fitting the general pattern were omitted from the tables. The Sanguine-Kajakai area, for example, which is just north of Girishk and has 3% fewer farms planting Mexipak, 3% more farms using fertilizer, and an average of only .1 hectares per farm planted. Seraj, Musa Kala-Zamindawar areas were omitted because of either being water-short or dependent on sources other than the regulated river (karez systems) for their water supply. These last areas had so little Mexipak planted that the FES did not or could not average hectares per farm.

Looked at from a slightly different perspective, the following table, from the FES, indicates the percentage of wheat planted out of the total land planted per farm.*

*FES, Table 9a, p. 22.

	<u>Percent of Mexipak</u>	<u>Percent of Local</u>
Marja	16	49.5
Nad-i-Ali	14	50.6
Girishk	14.5	36.3
Shamalan	2.4	64.6
Darwishan	3.3	67.2
Khanishin	-	94.2

This table indicates, as do those above, that while most farmers apparently plant some Mexipak, most in 1970 continued to plant large percentages in local varieties. As noted in several past memos and reports, this attachment to local varieties had cultural significance.

1. There was and still is a preference for bread made from local wheat, or at least from a mix of the two varieties. This preference related to taste, texture, moisture content, heaviness, and problems of baking.

2. Local varieties can be cut in early spring to be used as animal fodder before any other source of greenery is available. Mexipak cannot be used in this way, according to farmers. The cut local plant, with irrigation, revives in time for regular harvest, but later than Mexipak.

3. Local varieties do not require artificial fertilizers, an expense many farmers did not think they could afford, nor did they see any real value in it. The valley extension people, both U.S. and Afghan, note that on the early Wheat Field days, selected farmers were given free bags of fertilizer, which in some cases were left behind by the recipients at the end of the day.

In the tables below, total jeribs planted in wheat are listed by area for the years 1972 and 1973. There has been a major shift to Mexipak for most areas, but the original pattern of slower adoption of Mexipak as you move south remains.

	Total Jeribs 1972		Total Jeribs 1973	
	<u>Mexipak</u>	<u>Local</u>	<u>Mexipak</u>	<u>Local</u>
Marja	32,224	3,118	38,402	1,258
Nad-i-Ali	28,977	2,720	33,223	88
Girishk	33,806	10,122	38,489	1,189
Shamalan	20,242	26,809	33,468	2,556
Darwishan	15,735	78,443	35,352	30,737
Khanishin	-	-	3,824	32,723
Deshu	-	-	-	9,636

Source: HAVA Statistics Section.

There are Khans, or large landowners with local political influence, scattered throughout the Helmand region, but the Khans with the much larger concentrations of land begin to appear in central and south Shamalan, Darwishan, Khanishin and further south. For example, there was one estimate that the Khan of Char Barjak, noted above, owned about 45,000 jeribs. They do less double-cropping, probably because of a combination of the gradually more harsh environment, heat, and summer winds, and the less sure availability of water through more and more traditional intakes and ditch systems. There is more reliance on the more traditional crop of local wheat. With the single crop system there is no need to use the more rapidly maturing Mexipak. The Char Barjak Khan, for example, noted that because of the hot summer winds, (locally referred to as the 120-day wind, which in studies conducted in the 1880's averaged 10-12 miles per hour between May and August. Source: A. R. Baron) cotton plants would not mature, literally, the howls would not open.

Slightly aside, this Khan noted that presently, because of Helmand river water levels, he could get water to only about half of his land. The proposed ADB diversion-flood control dams would allow him to water all of his land, he said. At that time, double cropping might also become possible, along with a series of other agriculture practices already adopted further north.

I do not think that adoption of Mexipak in these areas is limited by the lack of awareness, but to some degree by technical problems. Second, or perhaps more important (no detail study has been done to clarify this point), is the social complex within which the larger Khans must function. The dependence on share-croppers is basic to the system. As the number of workers increase, the problems of supervision and control increase. I suspect that the massive introduction of the Mexipak/fertilizer agriculture package to hundreds of share-

croppers, with the controls and instruction necessary, is simply more than some of these Khans are willing to face. These men are very wealthy under their present system. Such basic changes might in some way disrupt this system.

Given the potential for increased production in these areas with the proposed ADB water control project (at least around Char Barjak), a great deal of detailed study is needed to understand the mechanisms of change, and adoption, I have been attempting to get at in this memo. I continue to emphasize the limited scope of our knowledge of the social structural mechanisms that are basic to our attempts to institute change. But apparently project development continues to take precedence over studies of the conditions necessary to be understood if the projects are to relate to what is in the field.

In recent discussions with two Khans in the Sanguine area, I was told that they planted no local varieties of wheat. The wheat they grew was Mexipak, as was the bread they served with tea. For them, it was economics. They do not have the land area of the Khans further south. They produce more wheat per jerib with Mexipak and they double crop most all their land. Cotton will be the emphasis this year, but they noted some difficulty in getting seed from the local agent, saying that they could get seed for only 10 jeribs. I did not have time on my last visit to check out this statement. Their source of water was regular. Apparently in this section of Sanguine they receive water from the Saraj canal. Other sections use traditional diversions from the river. (This was not clear.) They did note major problems of water distribution, however. On wheat, these Khans noted that they do not have wheat seed to plant one jerib of local wheat, even if they wanted to, which they do not.

Again, more study of local variations in change in agricultural practices must be made if we are to understand the mechanisms involved. The mechanisms appear to be social structural in nature. Our future projects, if any, relating to the introduction of new crops and practices must be based on a sound understanding of these mechanisms.