

~~SECRET~~

DEPARTMENT OF STATE

6080058 - (14)
80-0
6080058 24p

UNCLASSIFIED

PD-AAA-174-21

For each address check one ACTION INFO

TO - AID/W TOAID A -253 X

BEST AVAILABLE DOCUMENT

FROM - Rabat

SUBJECT - Increase in Cereals Production - 1969-70 Preliminary Report

REFERENCE -

The following information has been summarized from a more complete analysis of 1969-70 project activities and results which is currently being prepared by project technicians. This summary is forwarded for preliminary use until the full report is available near the end of the month.

GENERAL OBSERVATIONS

For the first time since its inception in 1968, the Increase in Cereals Production project was fully staffed and able to carry out a complete program of research, extension and training. Nearly 40,000 hectares (100,000 acres) of commercial production were planted to high yielding varieties during the 1969-70 crop season. Nearly three-quarters of this area was planted to the short-statured Italian varieties B.T. 2887 (Mara) and B.T. 908 as part of the Operation Ingrais program which included a total of 270,000 hectares (675,000 acres). A separate, voluntary program resulted in the planting of 10,000 hectares (25,000 acres) of the high yielding Mexican varieties, with seed produced from the 500 tons of seed imported by USAID in 1968. Nearly half of this area was planted in the drier southern areas, similar to the area in Mexico where these varieties were developed.

With the exception of dry periods in February and April-May which reduced yields slightly in some areas, weather was not a major limiting factor as it was in 1968-69 when an abnormally wet cold spring triggered a near devastating epidemic of Septoria leaf blight. Diseases were not an important factor during this last season, although local attacks reduced some yields, particularly by rust on late maturing fields.

PAGE 1 OF 4

TRANSMITTED BY: F&A:RJEduards:sgk DATE: 9/3/70 RECEIVED BY: Donald S. Brown, Director

APPROVED AND FORWARDED: F&A:DNWButchart

ACTING DD:FCorrel

UNCLASSIFIED

CLASSIFICATION (Do not type below this line)

Insects were more of a problem than were diseases with widespread losses of 10-25% attributed to Hessian Fly, stem sawfly, wheat stem maggot and others.

The major factor limiting production last year was the failure of many farmers to follow fully the recommended fertilizer and production practices. In many fields, poor land preparation resulted in poor stands while inadequate fertilization prevented optimum tillering and plant growth. These effects, combined with subsequent weed infestations, frequently resulted in yields lower than might have been expected if recommended practices had been followed. This was adequately demonstrated by the 35-50 qx yields obtained in research plots, demonstrations and production fields where these practices were properly observed.

In spite of the limiting factors cited, results were encouraging. The average yield of the Mexican varieties over the 10,000 hectares planted commercially will approach 20 qx/ha. while the commercial production of the Italian varieties is estimated to yield 16-17 qx/ha. These yields compare favorably with a national average yield this past year of slightly over 10 qx/ha. These results are an encouraging indication that high-yielding wheat varieties and their requisite production practices can be properly used in Morocco and that project goals of increased wheat production can be met.

Summary of results

In addition to the general observations cited above a number of more specific observations resulting from research, extension and training activities are summarized as follows:

1. The most significant result was that, broadly speaking, the Mexican varieties performed very well in the drier regions of the country, while the Italian varieties were slightly better in the more humid areas. The high-yielding varieties, Mexican & Italian outyielded local varieties and average of 6-10 quintals per hectare. This yield advantage is due not only to the varieties themselves but also to the use of more fertilizer and other improved production practices. When local varieties are grown under the same conditions they average nearly 15 qx/ha. However, local varieties are seldom grown under optimum conditions, therefore the increased yield from the introduction of high-yielding varieties and accompanying improved practices represents a true increase in production.

a. In the province of Agadir, the Mexican varieties produced superior yields in spite of insufficient irrigation and fertilization. Farmers' fields which were irrigated and fertilized averaged 27.3 qx/ha while non-irrigated, non-fertilized fields average 14.2 qx/ha. Farmers and ministry officials in the region consider these very satisfactory yields since local varieties averaged 9.9 qx/ha in non-fertilized, non irrigated fields.

b. About 950 hectares of Mexican varieties were planted on the government-operated (ex-colonial) farms in Marrakech Province. Yields averaged 25 qx/ha, and were considered very satisfactory compared to the previous high average of 16 qx/ha on these farms.

c. The Ministry's statistical service has completed a survey indicating a yield advantage for the Mexican varieties of from 5 to nearly 8 qx/ha, in the dry regions.

2. In other major wheat producing regions of Morocco, improved, short-strawed varieties were the top yielders in project demonstrations in three out of the four major wheat provinces. For example, in Casablanca province, improved varieties took the top 5 places out of the ten varieties in the demonstrations with an average yield for these varieties of 24.4 qx/ha vs. 20.1 qx/ha for local varieties. Similar results were obtained in the other provinces.

3. Nevertheless, the yield advantages of the improved, short-strawed varieties were generally below potential. It is apparent that both in the demonstrations carried out by the extension service and in most production fields, fertilizer rates were too low. Results obtained from the research program showed increased yields with increased nitrogen rates up to 100-120 kg of N per hectare, although other factors often limited maximum utilization of the available nitrogen. Evidence points to no response to potash, and little to phosphorus. It has been amply demonstrated that short-strawed varieties are capable of yielding well and using nitrogen efficiently, but when other limiting factors held yields below 30 qx/ha, the yield advantages of short-strawed varieties tended to disappear.

4. However, when these other limiting factors were removed and yields went above the 30 qx/ha level, the short-strawed varieties were highly advantageous, outperforming the tall local varieties by a wide margin. Many yields over 30 qx/ha were obtained, almost always by short-strawed varieties.

5. Limited trial results indicate that the best date of seeding for the short-strawed varieties is around the middle of December, nearly a month later than the recommended date for the later maturing local varieties. The Mexican varieties, which are not day-length sensitive can be planted as late as January 15 with ~~an~~ satisfactory results. These varieties thus allow greater flexibility in crop rotations and alternate varieties in case unfavorable weather in November and December delay planting operations.

6. Limited trials suggest that the BHC (Benzine hexachloride) seed treatment, currently standard in Morocco, may be inadequate. Seed treated with Oxyquinolate of copper ("Quinolate-15") produced yields considerably superior to BHC treated seed. Damping-off diseases associated with cool, moist weather at germination may be one of the major limiting factors in establishing good stands. Project technicians have been generally disappointed with stands of wheat obtained with 120 kgs seed/hectares, a seeding rate which is largely adequate in other countries.

7. The project wheat breeder planted 5586 entries of bread wheat, 521 entries of durum wheat, and 48 entries of Triticale. There were 18 pure lines which outyielded Sieta Cerron, the highest yielding Mexican variety, and the best Italian variety, BT 908. Some lines were found with promising insect resistance, particularly to Hessian fly, which is a very serious problem in Morocco. Several durum wheats under observation outyielded the most popular local durum variety. This is of special interest since durum wheat production accounts for nearly 3/4 of total Moroccan production. The Triticale lines tested also yielded well (up to 33% more than one of the best Italian varieties) and show promise for Morocco.

8. A training program was set up in Morocco for increasing the technical capabilities of Moroccan rural agents. In 12 separate sessions, groups of up to 20 agents were given courses in weed control, disease recognition, cultural practices, seed field inspection, and operation of combine harvesters.

ROSEWELL