Agricultural Research Center

Cotton Research Institute

Giza - Egypt

The Fundamentals of Crop Management In High Quality Cotton

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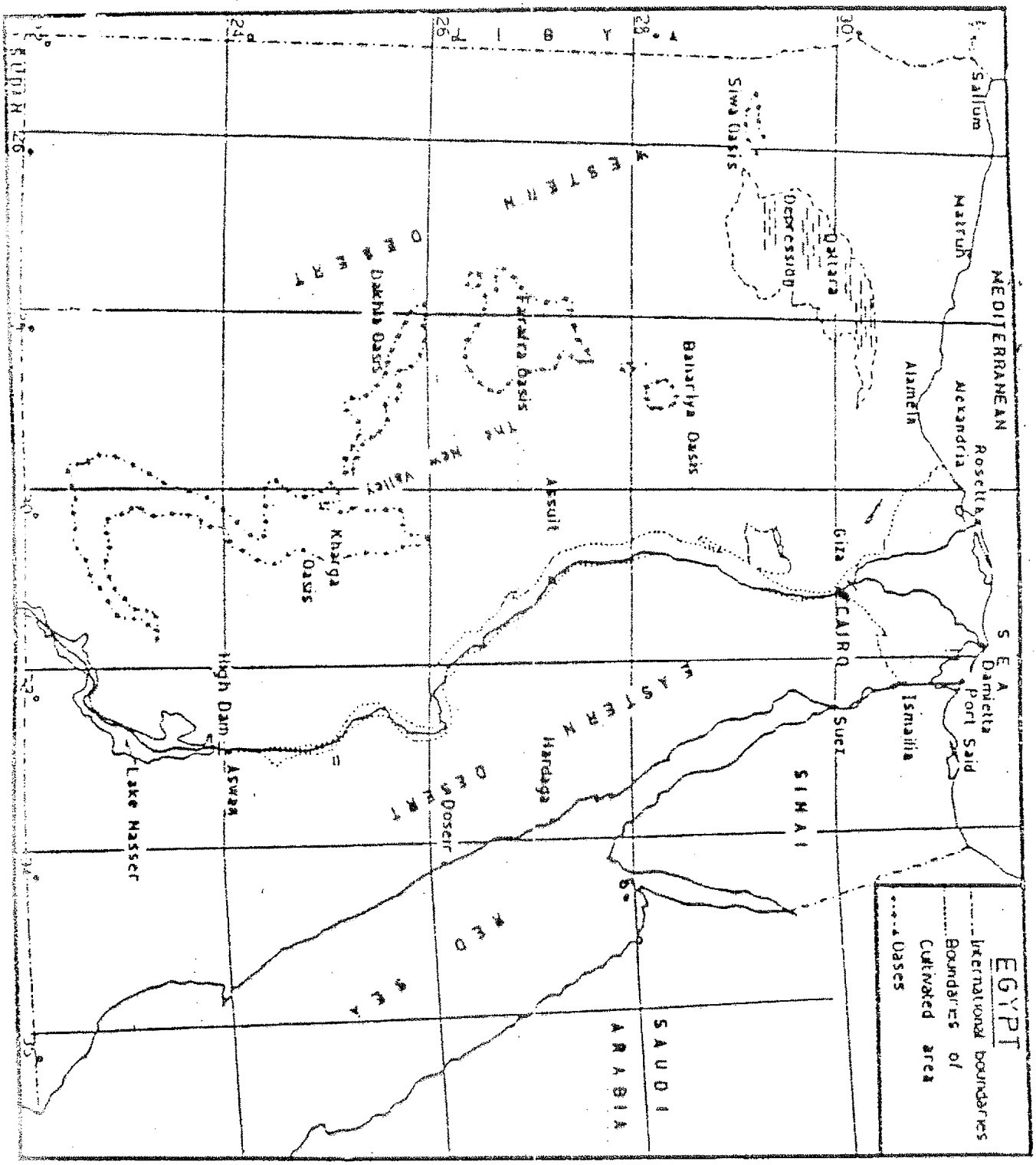
Climate acceptable:

The Egyptian cotton cultivars of high quality are sown in the Delta region within limits of approximately 32°N latitude and 30°S latitude. These areas of production generally meet the physiological requirements of these varieties such as:-

1. ***Relatively long season of about 180 days above 15°C and not exceeds 37°C in the mid summer.***
2. ***Continuous sunshine with long day duration especially in the mid season, about 9-13-9 hours/day, for beginning mid and late season, respectively.***
3. ***More humid region where the mean relative humidity is about 65-70%.***
4. ***The growing day degrees (DDU) ranging between 3000-3500 units through the wwhole season (Sin Curve Method – California)***


EGYPT
International boundaries
Boundaries of cultivated area
Oases
MEDITERRANEAN SEA
Sallum
Matruh
Alamein
Alexandria
Rosetta
Damietta
Port Said
Ismailia
Suez
CAIRO
Giza
Siwa Oasis
Qattara Depression
Bahariya Oasis
Farafra Oasis
Dakhla Oasis
Kharga Oasis
Asyut
Hurghada
Gulf of Suez
SINAI
Gulf of Aqaba
SAUDI ARABIA
RED SEA
Aswan
High Dam
Lake Nasser
SUDAN
LIBYA
EASTERN DESERT
NILE VALLEY
WESTERN DESERT
22°
24°
26°
28°
30°
32°
34°
36°

Map of Egypt.

Usually cotton fields need 3-4 hoeings through the growing season, Where the cotton plants stir to the middle of the row by final hoeing.

Thinning:

Thinning is carried on when cotton seedlings reach the growth stage of the appearance of 1-2 true leaves per plant by leaving two plants/hill. This stage realizes after 4-5 weeks from sowing date. Delaying thinning practice more than this stage results in creation of high competition within hill which in turn depresses plant growth and development.

Plant density:

The plant density per unit area is that which recognizes maximum photosynthetic activity accompanied by reducing plant self shedding to the minimum.

The optimum plant population per hectare ranging from 120.000-150.000 plants (65cm row width X 20-25 cm between hills X 2 plants/hill). These numbers are reduced through the growing season by 10-20%. The rest of plants remained at harvest are sufficient to produce higher yields.

Fertilization:

An average application of fertilizers is approximately 140 kg N, 50 kg $P_2 0_5$ and 60 kg $K_2 0$ per hectare. Nitrogen is applying in two equal doses; after thinning and before the second irrigation. Phosphors and potassium can be added through land preparation. Addition of organic manure reduces the previous amount of nitrogen fertilizer by 20%.

However, all the cotton varieties in Egypt is land irrigated because the average rainfall not exceeded more than 60 (mms).

Cotton Soil:

The basis needs of cotton from the soil are water, oxygen, available nutrients and anchorage of roots.

Most of the soil in the Delta of Egypt are alluvial and may be heavy clay or clay-loam.

However, the heavy soil favours the growth and development of high quality varieties due to its granulation where the soil is more looser, This allows the air circulate more freely, prevents excess water to drain out with little hindrance and makes it possible for water to respond freely to the capillary pull of the plant roots.

Sowing date:

The soil temperature at 20cm depth before knocking the ridge showld be 15°C (60°F) at 8:00 a.m. for ten successive days before planting, in order to secure the highest germination percentage (about 85%). This date permits early sowing through March which in turn permits long season for growth, development and maturity of the plant early in the season, where rainless and sunshiny days are desired.

Hoeing :

Hoeing is the process of removing and destroying the weeds in the cotton fields. Besides filling top of the cracks in the soil loosening the soil so that it may by properly aerated, aiding of water penetration and the placing of the soil in the proper condition for plant nutrients.

Regarding the micronutrients in case of deficiency of Fe, Zn and Mn can be added to cotton plants by foliar nutrition technique.

Irrigation:

The amount of water needed during the growing season depends upon many factors such as soil type, climatic conditions and variety.

Preplant irrigation may be made especially when there is enough water and time to carry it. Irrigation at planting should be carried immediately after sowing. First irrigation should be carried after sowing by three weeks. This irrigation may be retarded to 4-5 weeks especially in heavy soils when rice precedes cotton. The second irrigation should be applied after three weeks from the first. Then continual irrigation should be followed each 12-15 day intervals. Irrigation should be carried early in the morning or at sunset. Increasing or decreasing the amount of water at each irrigation and number of irrigations cause many disturbances which affects the maturity of fibers.

Harvesting:

At picking time, rainless and sunshiny days are desired during this period. Rains discolor the lint of open bolls. Also, rains and wind together cause locks to fall to the ground. Frequent of daily rains cause seed to sprout in the boll and result in much boll rot even in open bolls.

In Egypt, picking starts when about 60% of the bolls on plant are opened . This demonstrated as first picking . the second done after about 3-4 weeks form the first . However picking is carried manually , where this method of harvesting produce higher cotton grades .

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