



TOGETHER
for a sustainable future

OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

We regret that some of the pages in the microfiche copy of this report may not be up to the proper legibility standards, even though the best possible copy was used for preparing the master fiche.



D03132



Distr.
LIMITED

ID/WG.99/110
26 November 1971

ENGLISH
Originals: FRENCH

United Nations Industrial Development Organization

Second Interregional Fertiliser Symposium

Kiev, USSR, 21 September - 1 October 1971
New Delhi, India, 2 - 13 October 1971

Agenda item II/21

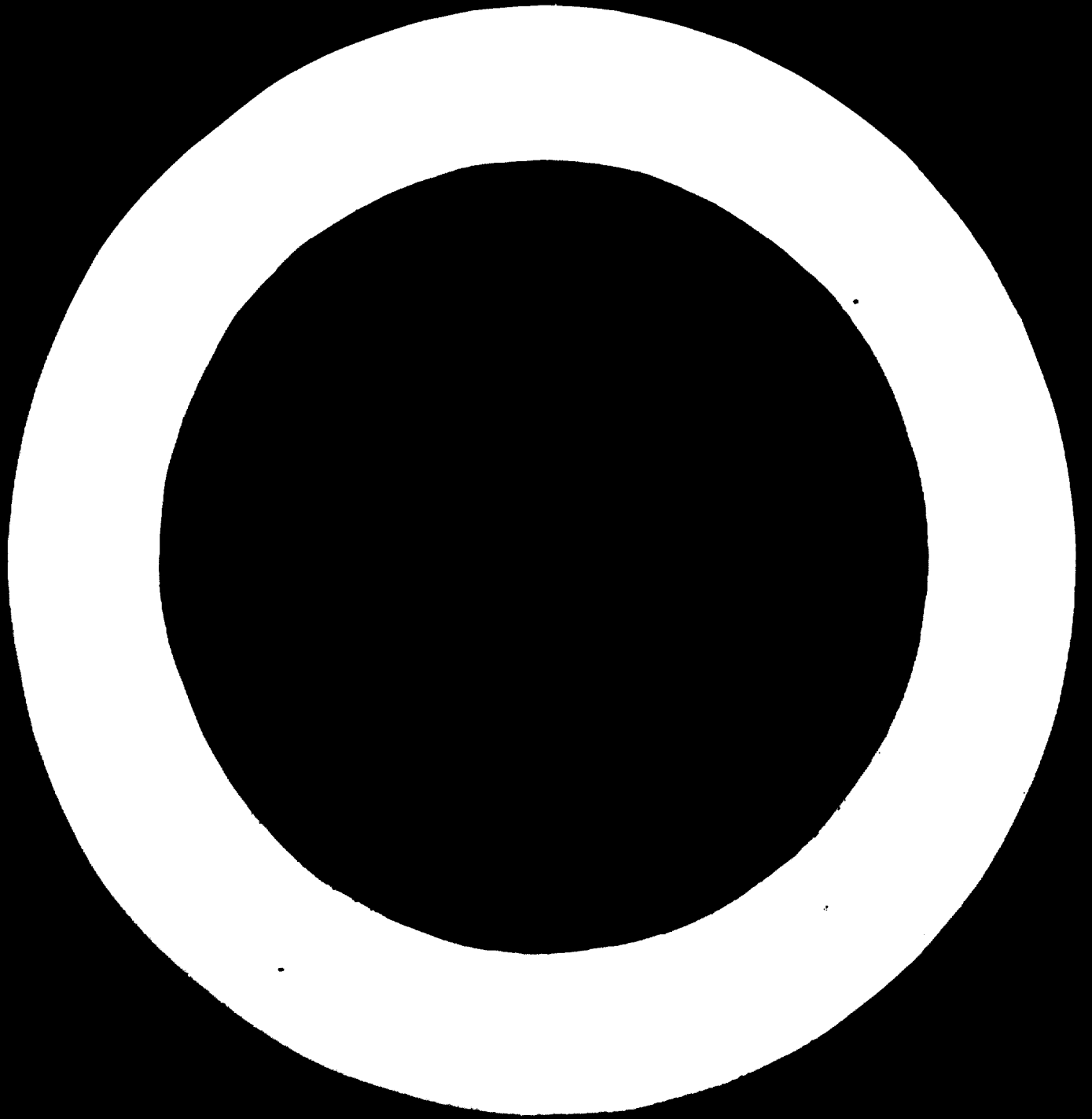
THE FERTILIZER INDUSTRY OF TURKEY 1/

by

D. Abdisselamoglu
N. Deliormanli
Turkey

1/ The views and opinions expressed in this paper are those of the authors and do not necessarily reflect the views of the secretariat of UNIDO. This document has been reproduced without formal editing.

id.71-9044



1. Introduction

In order to give an idea of the place occupied by the chemical fertilizer industry in the Turkish economy, the existing factories, with their production capacities in 1970, are listed in table 1.

Turkey is being provisionally supplied with phosphate by Tunisia under a five-year agreement concluded in 1969, and in potassium by various producing countries; it produces its nitrogen on the basis either of coal (lignite) or of ammonia recovered from coking.

2. Production

Depending on the methods adopted or manufacturing processes envisaged, the advantages of certain locations such as at a port or in the neighbourhood of a coal mine can compensate to a certain degree, in some cases, for remoteness from areas of consumption.

Phosphate fertilizer production was introduced at Karabük D.Ç., the iron and steel plant at Karabük, in 1938. The superphosphate plant at Iskenderun started operating in 1954, and that at Yarimca in 1962.

The nitrogen fertilizer and chemical product plant at Kütahya has been operating since November 1961. It produces 119 tonnes of anhydrous ammonia, most of which is used for the production of fertilizers, e.g.:

Ammonium nitrate (limestone)	20.5% N	50,000 tonnes/year
Ammonium sulphate	21.2% N	60,000 tonnes/year
Concentrated nitric acid	98% HNO ₃	6,000 tonnes/year
Technical ammonium nitrate	34.8% N	1,000 tonnes/year

In the course of time, improvements have made it possible to increase production by about 10 per cent. In addition, between 1965 and 1968 the plant was expanded to include production of 26% N ammonium nitrate, with a capacity of 338,500 tonnes/year. The details of chemical fertilizer production from 1963 to 1970 are given in table 2.

In 1962-1970, a remarkable effort was made in production. Fertiliser production was increased by 8-10 per cent from 1962 by comparison with the previous years. None the less, the requirements for different fertilizers are far from covered by production in the country. Imports are necessary and will continue to be so for some time to come.

3. Imports

Imports of chemical fertilizers between 1963 and 1970 are shown in table 3. These amounted to 41,000 tonnes (including potassium sulphate) in 1963, and increased to 1,204,410 tonnes by the end of 1969, representing an increase of nearly 30 times in this period. The reason for the increase in imports is that production in the country is not increasing at the same rate as consumption.

4. Consumption

Consumption between 1960 and 1970 is shown in table 4. It amounted to around 100,000 tonnes/year in 1960 and reached more than 2 million tonnes/year in 1970, showing an increase of 1,964 per cent in ten years.

The distribution of consumption is determined by the agricultural characteristics of the regions. In 1963, 18.6 per cent of total chemical fertilizer consumption was accounted for by the Mediterranean region, 16.7 per cent by the western region and 15.4 per cent by the northern region. In 1970, 30.7 per cent of consumption took place in the Mediterranean region and 19.1 per cent in the western region; in other words, half the total consumption of the country was accounted for by these two regions.

The problem of the need for information has two aspects: the customer - the farmer - must be informed of what is being done and, on the other hand, information must be obtained concerning his requirements or desires.

5. Plants

The plants set up in Turkey are shown in table 1, column 2.

In addition, studies are already being carried out concerning a nitrogen fertiliser plant at Gemlik on the coast of the Sea of Marmara; construction will begin soon. It will produce 26 per cent N ammonium nitrate.

Another fertilizer plant alongside the refinery at Ali Ağa, near Izmir, is under study.

6. Conclusion

From this general exposé, it can be concluded that the level of consumption of fertilisers of all types is considerably below what a normal level would be. In any event, it may be hoped that current efforts directed towards the organisation of economic production will eventually make it possible to improve this situation.

FERTILIZER PRODUCTION IN TURKEY IN 1970

Name of firm	Location	Type of fertilizer	Capacity t/year	Production t/year	Amounts in t/year N	P₂O₅	Ratio production capacity
<u>Nitrogen fertilizers:</u>							
Asot Samsyli	Kütahya	Ammonium sulphate (21% N)	80,000	80,388	16,881	-	104
	Kütahya	Ammonium nitrate (limestone) (21% N)	60,000	65,711	13,799	-	110
	Kütahya	Ammonium nitrate (dolomite) (26% N)	338,500	118,362	48,975	-	56
Karabük D.Ş.	Karabük	Ammonium sulphate (21% N)	8,500	6,835	1,435	-	80
<u>Phosphate fertilizers:</u>							
	İskenderun	Triple superphosphate (43-45% P₂O₅)	100,000	77,701	-	34,965	80
	Yarınca	Normal superphosphate (18% P₂O₅)	120,000	119,506	-	21,511	100
Asot Samsyli	Samsun	Triple superphosphate (45% P₂O₅)	220,000	14,149	-	6,367	6
Karabük Demir Çelik	Erzurum	Normal superphosphate (18% P₂O₅)	22,000	1,616	-	291	7
					Totals: 181,089	63,134	

Table 2

EMBISSION OF FERTILIZERS IN SWEDEN, 1963-1970
(Tons/year)

Type of Fertilizer	1963	1964	1965	1966	1967	1968	1969	1970
Ammonium sulphate (20% N)	86,256	97,256	92,856	92,519	91,127	82,339	91,027	87,223
Ammonium Nitrate (20% N)	58,744	63,487	62,278	64,628	63,580	62,245	60,000	65,711
Urea superphosphate (45% P ₂ O ₅)	100,000	104,000	124,852	43,909	45,557	41,585	95,519	25,375
Triple superphosphate (45% P ₂ O ₅)	-	-	-	-	-	53,827	59,281	91,854

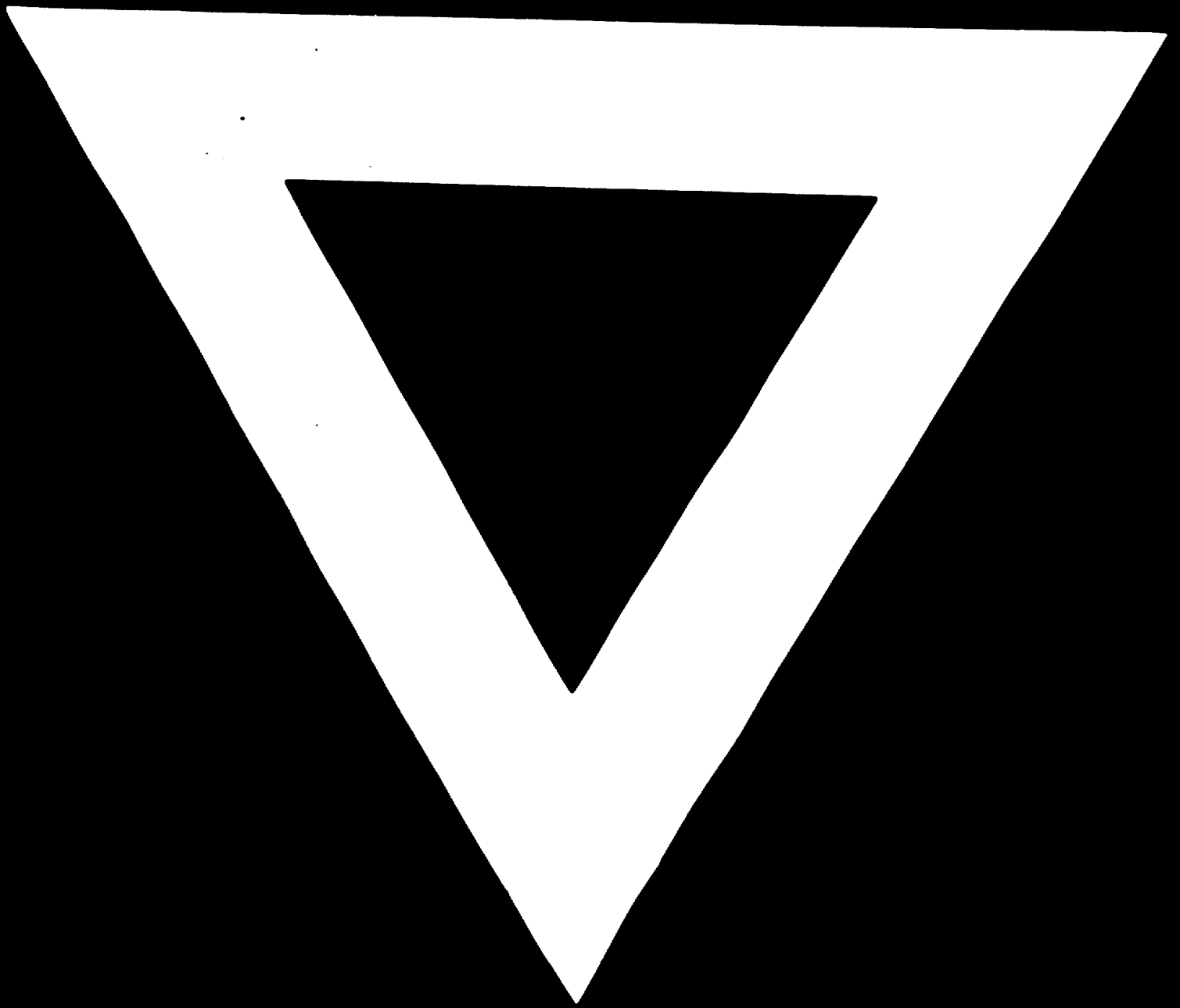
IMPORTS OF CHEMICAL FERTILIZERS INTO TUNISIA, 1963-1970
(Tonnes)

Type of fertiliser	1963	1964	1965	1966	1967	1968	1969	1970
Ammonium sulphate (21% N)	-	300,000	118,477	211,200	349,942	375,502	401,569	196.6
Ammonium nitrate (21% N)	-	-	-	50,000	77,478	152,230	6,573	4.5
Ammonium nitrate (20% N)	-	-	-	-	-	63,183	196,143	110.9
Urea (46% N)	-	-	-	-	-	-	44,000	82.5
Superphosphate (18% P ₂ O ₅)	-	-	25,000	25,236	-	-	-	-
Triple superphosphate (45% P ₂ O ₅)	-	46,417	213,000	240,000	510,000	844,566	150,672	-
Bismuthium phosphate D.A.P.	-	-	-	-	-	28,137	91,699	48.0
Potassium sulphate	6,000	5,200	6,750	4,000	5,035	4,000	1,000	-
Miscellaneous multi- nutrient fertilizers	35,000	20,000	35,000	70,000	197,000	160,000	227,000	250.0

Table 4

FERTILIZER CONSUMPTION IN TUNISIA, 1960-1970
(Tonnes)

Fertilizers	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
Ammonium sulphate (21% N)	46,005	140,022	180,316	151,760	150,500	233,315	268,836	432,031	464,637	472,591	320,528
Ammonium nitrate (21% N)	-	-	-	-	87,500	81,810	109,110	44,907	187,864	82,660	79,018
Ammonium nitrate (20% N)	-	-	-	-	-	-	-	91,608	94,430	277,129	384,470
Urea (46% N)	-	-	-	-	-	-	-	-	-	25,509	59,648
Superphosphate (16% P ₂ O ₅)	59,589	77,000	104,528	178,661	180,394	222,984	223,758	266,115	195,853	109,593	119,530
Triple superphosphate (45% P ₂ O ₅)	-	-	-	-	-	-	41,324	78,000	-	61,892	87,334
Superphosphate (16-16% P ₂ O ₅)	-	-	-	-	11,630	8,108	-	-	-	-	-
Single superphosphate (16% P ₂ O ₅)	-	-	-	-	52,976	189,945	211,248	393,597	781,482	569,312	355,967
Ammonium phosphate (16-18-0)	-	-	-	-	-	-	-	-	40,089	289,038	222,084
Multi-component fertilizers	-	-	-	49,000	20,000	35,000	70,000	107,000	160,000	227,000	250,000



10. 8. 73