

Type of soil, amount and distribution of precipitation, and length of time the land has been farmed, are basic factors explaining the differences in kinds and quantities of commercial fertilizer used in different parts of the Corn Belt. The soils in the Eastern Corn Belt are relatively low in organic matter and native fertility, they are more acid, and they are more leached than are soils in most of the rest of the Corn Belt. Losses of available plant nutrients from leaching and cropping have been relatively greater in soils of the Eastern Corn Belt than in soils to the west and north because of the greater annual precipitation, the more open winters, and the longer time the land has been farmed. The prairie soils of the Central and Northern Corn Belt are generally high in organic matter and they are deeper, have a higher level of native fertility, and are less leached than are soils of the Eastern Corn Belt. Soils of the Southern Corn Belt generally have less organic matter, they are not as deep, and have less porous subsoils, and they are naturally less fertile than soils in most of the Central Corn Belt. The soils of the Western Corn Belt are generally well supplied with plant nutrients, including calcium, and they are often alkaline in reaction. Loss of native fertility has been at a relatively low rate in soils of the Western Corn Belt. There has been relatively little leaching. Moreover, losses from cropping have been rather light as the yields have been relatively low because of limited rainfall.

In the Corn Belt, the soil areas of relatively greatest deficiency in plant nutrients are in the eastern and southern regions. In these regions the precipitation is greater than in most of the rest of the Corn Belt so the supply of moisture does not limit the yield response to applications of fertilizer as often as it does in other parts. Nitrogen is used throughout the Corn Belt, and constitutes a higher percentage of the total fertilizer used in the western half than in the eastern half of the Corn Belt. Phosphate also is used in all parts, but the relatively greatest use is in the eastern half. Potash is used relatively little in the Western Corn Belt because of the high level of available potassium in most of the soils there. Potash is used relatively more in the Eastern and Southern Corn Belt and to an intermediate extent in the Northern and Central Corn Belt (3).

In the 1954 Census, the inquiry on fertilizer included all fertilizer purchased or to be purchased during the calendar year 1954 for use on the farm, whether bought by the operator or by the landlord, or jointly. Soil conditioners—such as lime, marl, and gypsum—were not to be included as commercial fertilizers or fertilizing materials. Also not to be included were barnyard manure, straw, and other refuse materials. No specific mention was made of basic slag, and this item was not considered to be a fertilizing material by many farmers and enumerators in the Corn Belt. The acreage fertilized was to be counted only once even if fertilizer was applied more than once to the same crop during 1954. The total tonnage used was to be reported whether applied in one or in more than one application.

Two out of every three commercial farms in the Corn Belt reported expenditures for commercial fertilizer and fertilizing material in 1954. A slightly larger percentage of the cash-grain farms than of the livestock farms in the Corn Belt as a whole reported this expenditure (table 62). In the Northern Corn Belt, the larger percentage of livestock farms than of cash-grain farms reporting commercial fertilizer may be explained by the fact that most of the livestock farms are in the eastern part, while most of the cash-grain farms are in the western part. The relatively lower level of native fertility of much of the soil in the eastern part,

along with the more ample supply of moisture compared with the western part of this region, results in a more marked response from applications of commercial fertilizer in the eastern part of the Northern Corn Belt.

Commercial fertilizer was most widely used by farmers in the Eastern Corn Belt, where expenditures for this item were reported on 88.1 percent of the commercial farms. The area ranking second was the Southern Corn Belt with 68.8 percent of the commercial farms reporting such expense. Only half of the commercial farms in the Western Corn Belt reported expenditures for fertilizer and fertilizing material.

Corn is the crop on which commercial fertilizer was most commonly used. It was used on corn by 56.7 percent of the commercial farms in the Corn Belt. The contrast in fertilizer use from east to west is shown by the percentage of cash-grain farms reporting, which ranged from 87.8 percent in the Eastern Corn Belt to 38.0 percent in the Western Corn Belt.

Use of commercial fertilizer on hay and pasture was reported by a larger proportion of the livestock farms than of the cash-grain farms in each region of the Corn Belt. This is partly a reflection of the more common occurrence of hay and pasture crops on livestock farms and partly a reflection of the greater importance placed on these crops by operators of livestock farms. Relatively very few farmers reported using commercial fertilizer on fruits, vegetables, and potatoes.

TABLE 62.—PERCENT OF ALL COMMERCIAL FARMS REPORTING EXPENDITURES FOR COMMERCIAL FERTILIZER AND USE OF COMMERCIAL FERTILIZER ON SPECIFIED CROPS, BY TYPE OF FARM, IN THE CORN BELT AND COMPONENT REGIONS: 1954

Region and type of farm	Percent of all commercial farms						
	Farms reporting expenditures for commercial fertilizer and fertilizing material	Farms reporting commercial fertilizer used—					
		On hay and crop-land pasture	On other pasture	On corn	On wheat	On fruits, vegetables, and potatoes	On other crops
<b>Total Corn Belt:</b>							
All commercial farms.....	66.5	12.9	2.9	56.7	(NA)	1.3	(NA)
Cash-grain farms.....	68.8	9.9	1.9	59.6	(NA)	1.0	(NA)
Livestock farms <sup>1</sup> .....	65.4	14.5	3.5	55.8	(NA)	0.6	(NA)
<b>Eastern Corn Belt:</b>							
All commercial farms.....	88.1	16.0	3.4	82.7	(NA)	3.4	(NA)
Cash-grain farms.....	92.7	10.8	2.2	87.8	(NA)	2.5	(NA)
Livestock farms <sup>1</sup> .....	86.9	19.6	4.5	83.2	(NA)	1.8	(NA)
<b>Central Corn Belt:</b>							
All commercial farms.....	61.3	13.1	1.8	51.4	(NA)	0.6	(NA)
Cash-grain farms.....	64.4	12.0	1.5	54.2	(NA)	0.5	(NA)
Livestock farms <sup>1</sup> .....	61.2	13.8	2.1	51.8	(NA)	0.2	(NA)
<b>Northern Corn Belt:</b>							
All commercial farms.....	63.9	11.7	1.7	57.3	(NA)	0.7	(NA)
Cash-grain farms.....	54.3	11.3	0.8	46.7	(NA)	0.4	(NA)
Livestock farms <sup>1</sup> .....	71.6	12.5	1.9	65.8	(NA)	0.4	(NA)
<b>Western Corn Belt:</b>							
All commercial farms.....	50.2	10.6	3.4	38.3	12.7	0.3	20.5
Cash-grain farms.....	49.3	6.8	2.3	38.0	19.1	0.2	16.7
Livestock farms <sup>1</sup> .....	52.5	13.0	4.2	40.9	8.4	0.2	23.6
<b>Southern Corn Belt:</b>							
All commercial farms.....	68.8	12.8	3.8	54.3	34.8	1.3	30.2
Cash-grain farms.....	74.4	8.3	2.3	61.1	47.4	0.8	27.0
Livestock farms <sup>1</sup> .....	67.2	14.8	4.4	53.2	27.4	0.8	31.3

NA Not available.

<sup>1</sup> Livestock other than dairy and poultry farms.