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United States
General Accounting Office
Washington, D.C. 20548

**Resources, Community, and
Economic Development Division**

B-261590

June 15, 1995

The Honorable Richard G. Lugar
Chairman, Committee on Agriculture,
Nutrition, and Forestry
United States Senate

Dear Mr. Chairman:

Since 1933, federal farm programs have been focused on ensuring an abundant and stable food supply at reasonable prices while maintaining income and protecting prices for farmers. To achieve these objectives, the U.S. Department of Agriculture (USDA) has often tried to manage the supply of key program crops by limiting the amount of land planted to those crops.

In preparation for the 1995 farm bill debate on managing the supply of key program crops, you asked us to provide nationwide information on the productivity of farmland. As agreed with your office, we are providing information on the yield per acre of four major crops--corn, wheat, upland cotton, and soybeans. We selected these crops because corn, wheat, and upland cotton account for the majority of USDA's expenditures under the commodity support programs, and while soybeans are not a commodity program crop, soybean production, supply, and price can be closely linked to commodity program crops such as corn for which it is often an alternative crop.

In summary, there are significant nationwide variations at both the state and county levels in the productivity of the land used to grow the crops we reviewed. We did not, however, evaluate why these variations occurred. Furthermore, in any given year, short-term variances in weather or other factors can distort the results. Accordingly, in preparing our analysis, we calculated 10-year yields based on information compiled by the National Agriculture Statistical Service (NASS). To provide a perspective on state and county data, table 1 shows the 10-year nationwide average yield and commodity program payment yields from the Consolidated Farm Service Agency

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(CFSA). The CFSA yields, which have been fixed at the 1986 level as a cost-saving measure, are used to determine payments under USDA's commodity support programs.

Table 1: National Yield Data for Four Crops

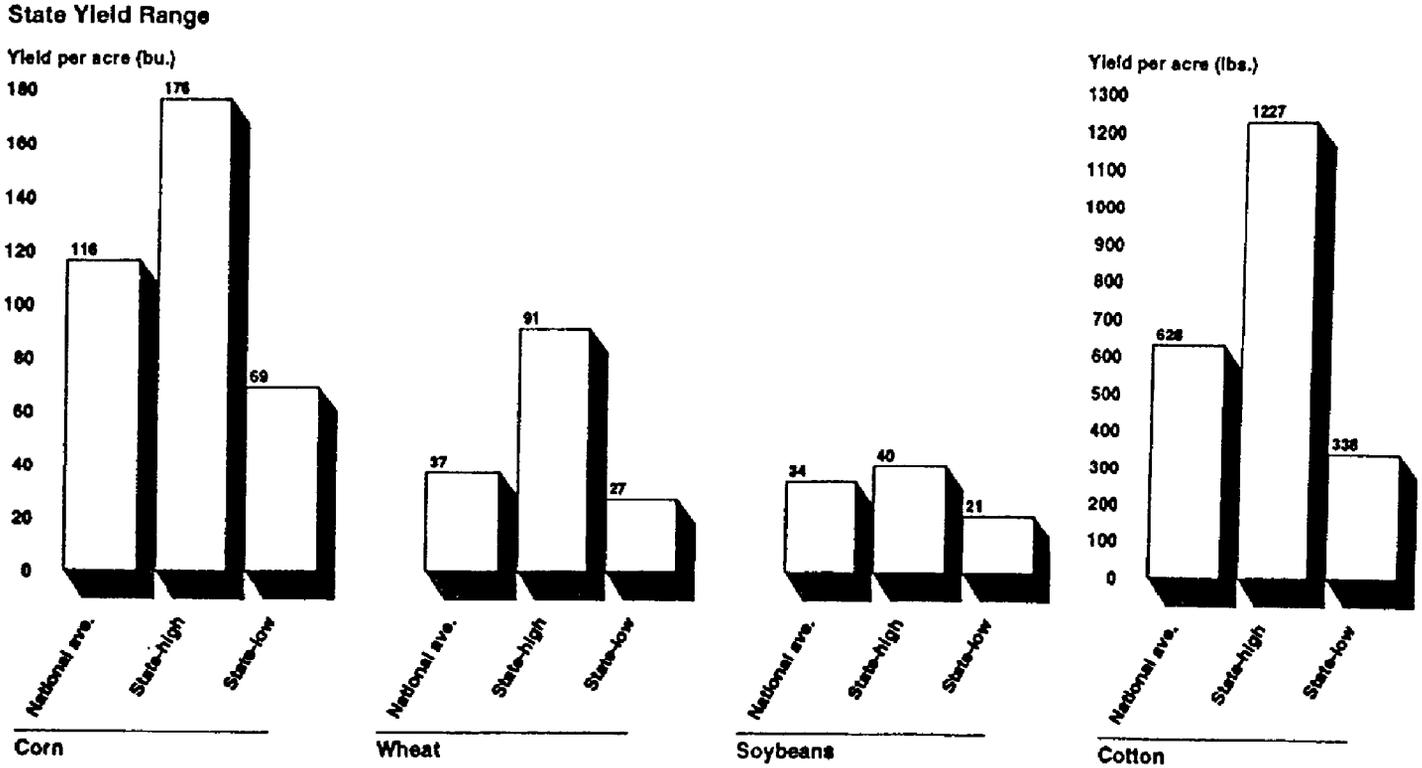
Program crop	Harvested 10-year average	CFSA program yield
Corn (bushels)	115.6	105
Upland cotton (pounds)	627.8	604
Wheat (bushels)	36.7	34.4
Soybeans (bushels)	34.1	^a

^aCFSA does not calculate yields for soybeans, which are not covered by USDA's commodity support programs.

Source: NASS data.

On a statewide basis, average land productivity can vary widely from the national average, between 2 and almost 4 times as great, depending on the crop. Figure 1 compares the range in yields between the state with the highest and the state with the lowest 10-year average yield with the national 10-year average.

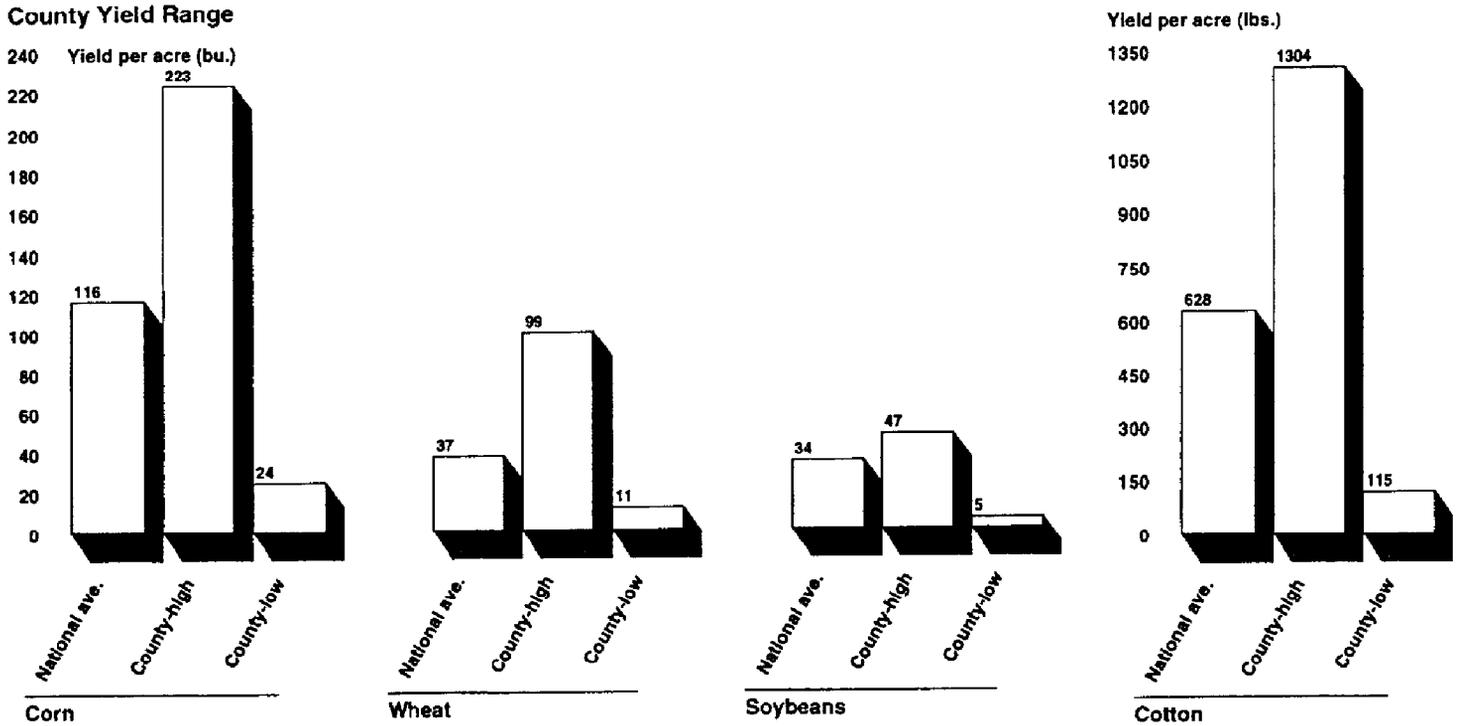
Figure 1: Range of Yield, by Crop, Using 10-Year State and National Averages



Source: NASS data.

At the county level, the variation in productivity for these four crops becomes even greater. We found about a 10-fold variation between the counties with the highest and lowest 10-year average yields for these four crops. Figure 2 compares the range in yields between the county with the highest and the county with the lowest 10-year average yield with the national 10-year average.

Figure 2: Range of Yield, by Crop and by County, Using 10-Year Averages



Source: NASS data.

Individual county 10-year average yields are displayed for each of these crops in enclosure I.

SCOPE AND METHODOLOGY

To calculate long-term yields, we obtained NASS' data files directly from the USDA computer center in Kansas City, Kansas. Because we needed to provide this information in a brief period of time, we used the NASS yield data available from the Federal Crop Insurance Corporation as of March 1995. We calculated 10-year yields based on the latest available data. For wheat and upland cotton, we used crop years 1984 through 1993, and for corn and soybeans, we used crop years 1985 through 1994. However, the 1994 yield information for corn and soybeans was preliminary. We

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subsequently compared the preliminary information with the final NASS information and found that the differences between the information were small. Consequently, we did not recalculate the 10-year averages for corn or soybeans.

In calculating 10-year average yields, we first aggregated yearly county acreage and production data for the state and nation, by crop year. We then calculated 10-year unweighted average yields at the county, state, and national level. An unweighted yield allots each year an equal probability of occurring in determining the average. We chose corn, wheat, and upland cotton since they are USDA's largest program crops; a majority of the commodity support payments are for these three crops. While soybeans are not a program crop, it is one of the largest crops grown and is often an alternative crop to corn.

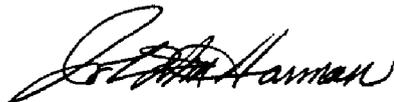
We conducted our work between February and June 1995 in accordance with generally accepted government auditing standards. We discussed the facts in this report with USDA officials, including the Principal Economic Counselor from the Office of Chief Economist, and the Head of the Field Crops Section, Estimates Division, NASS. They generally agreed with the information presented, and we have included their comments where appropriate.

As arranged with your office, we are sending copies of this correspondence to the Ranking Minority Member of the Senate Committee on Agriculture, Nutrition, and Forestry; other appropriate congressional committees; the Secretary of Agriculture; the Administrator of NASS; the Director of the Office of Management and Budget; and other interested parties. We will also make copies available to others upon request.

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Please contact me at (202) 512-5138 if you or your staff have any questions.

Sincerely Yours,



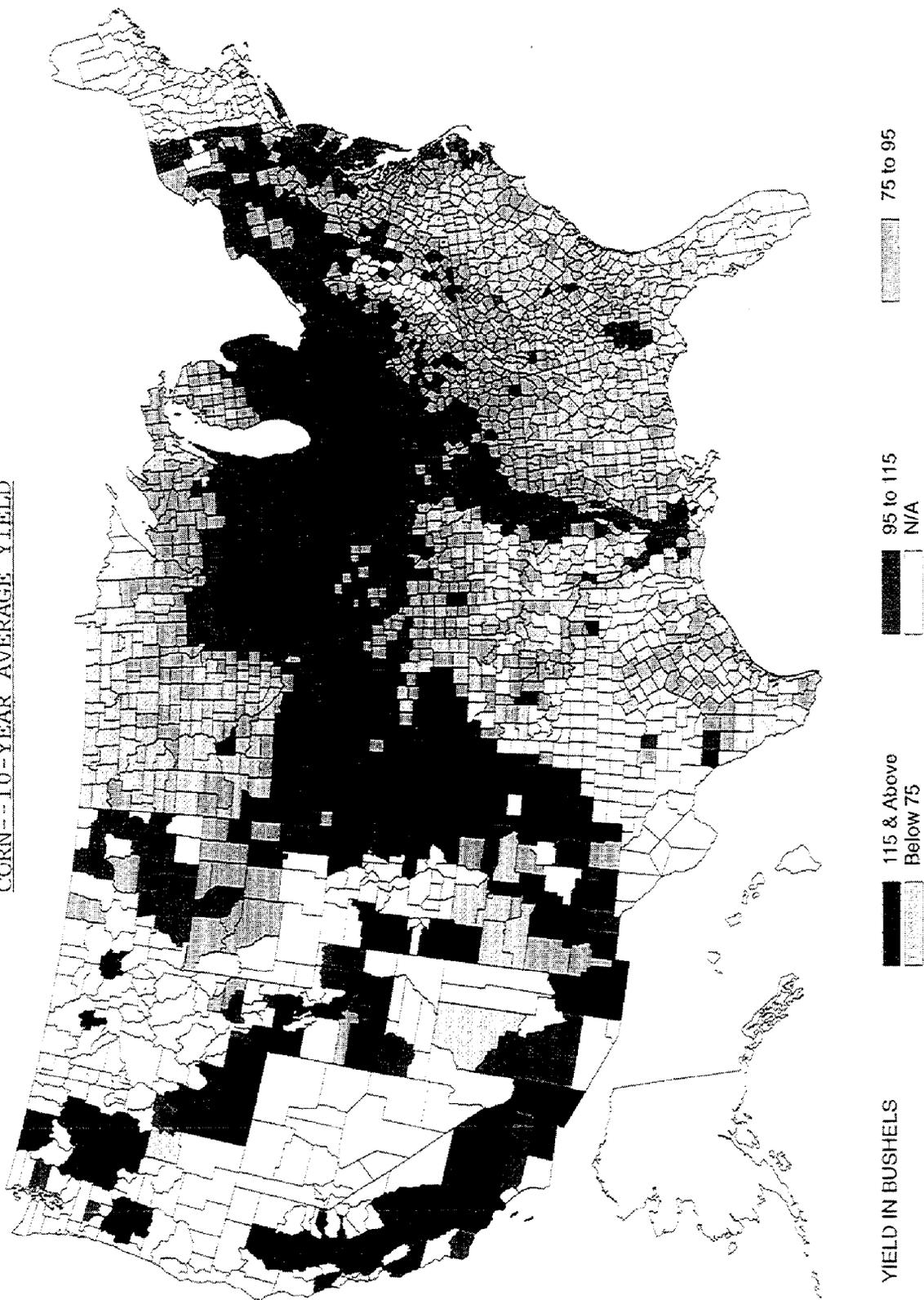
John W. Harman
Director, Food and
Agriculture Issues

Enclosures - 4

ENCLOSURE I

ENCLOSURE I

CORN -- 10-YEAR AVERAGE YIELD



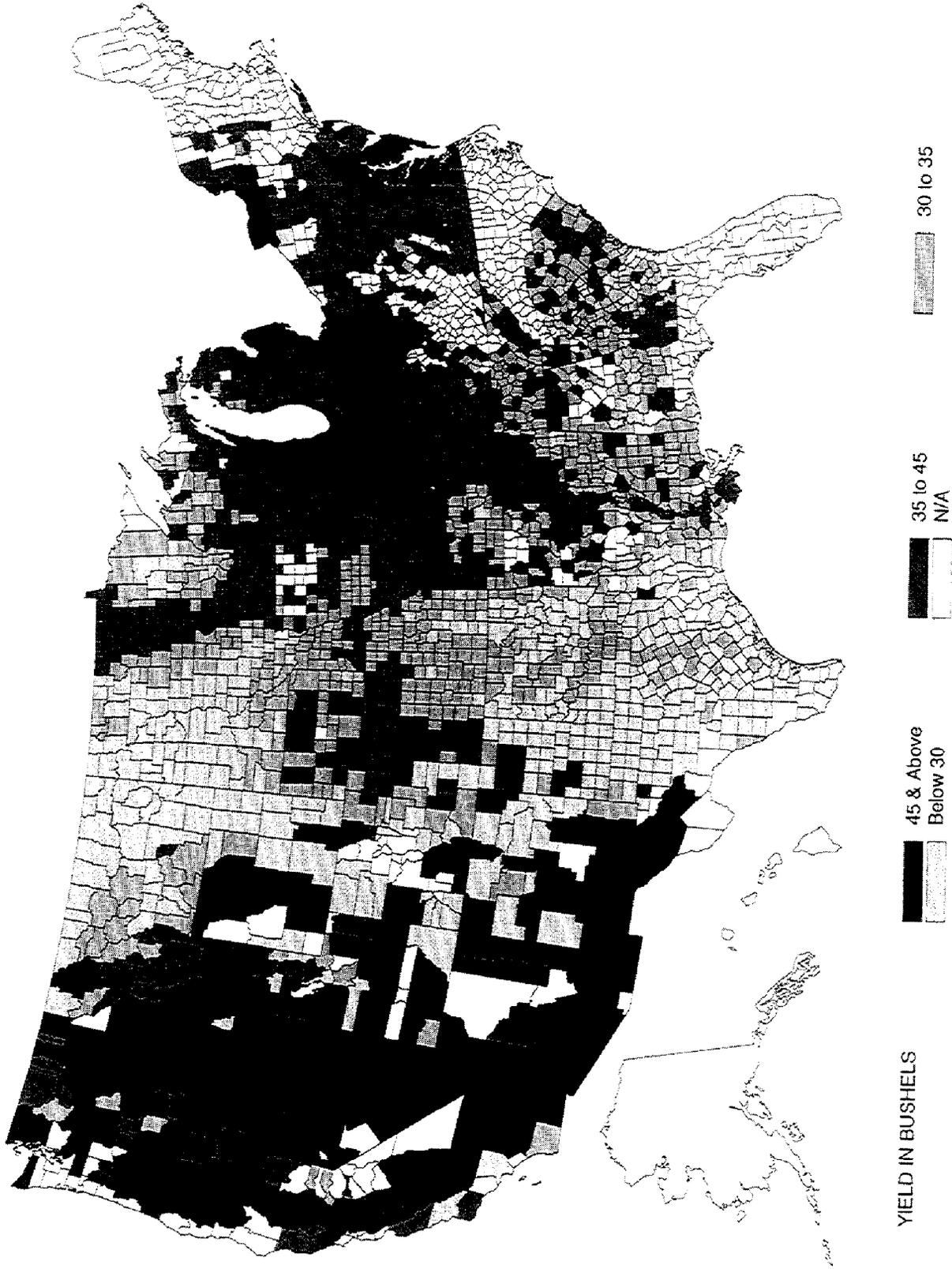
YIELD IN BUSHEL

115 & Above
Below 75

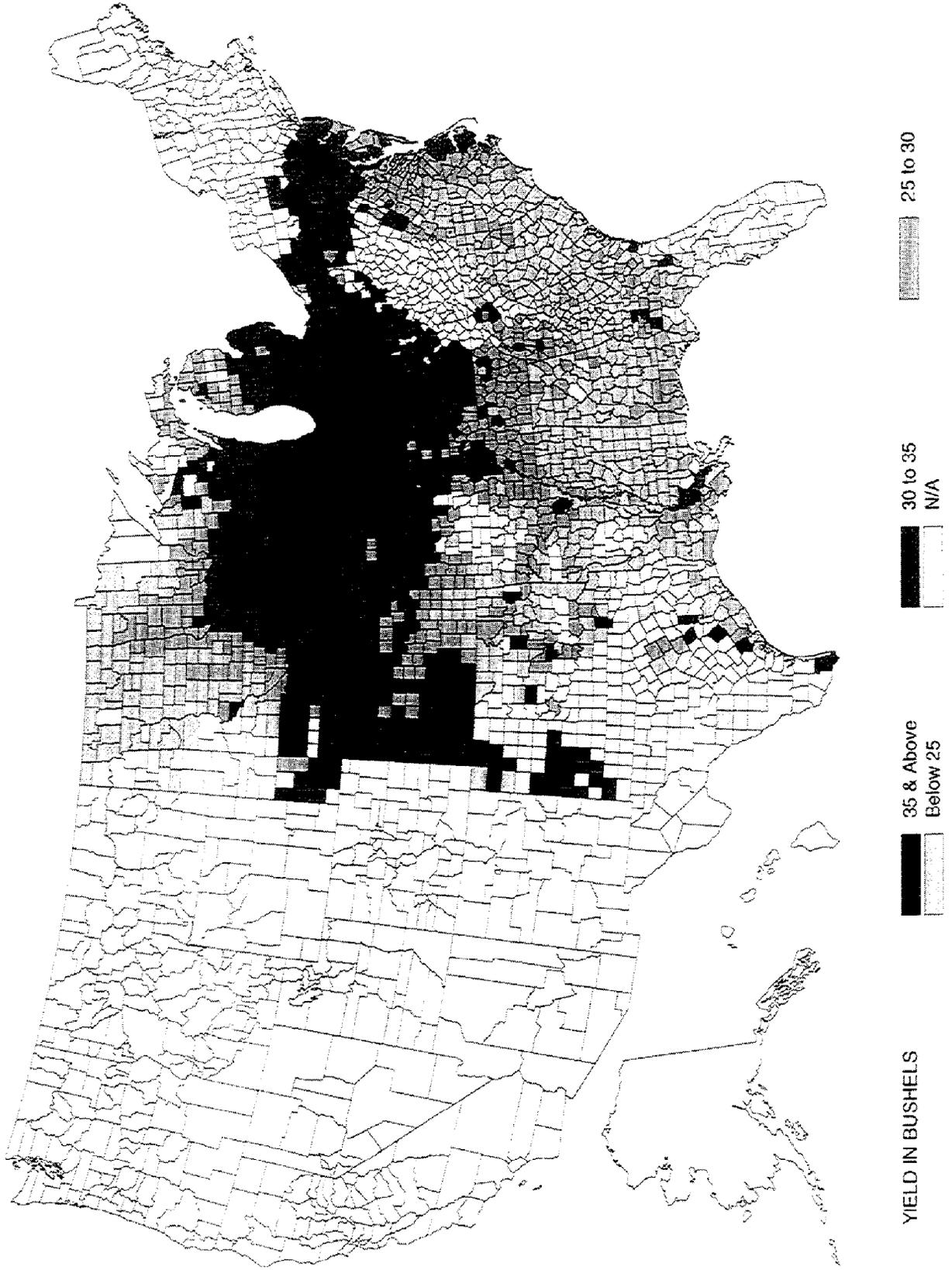
95 to 115
N/A

75 to 95

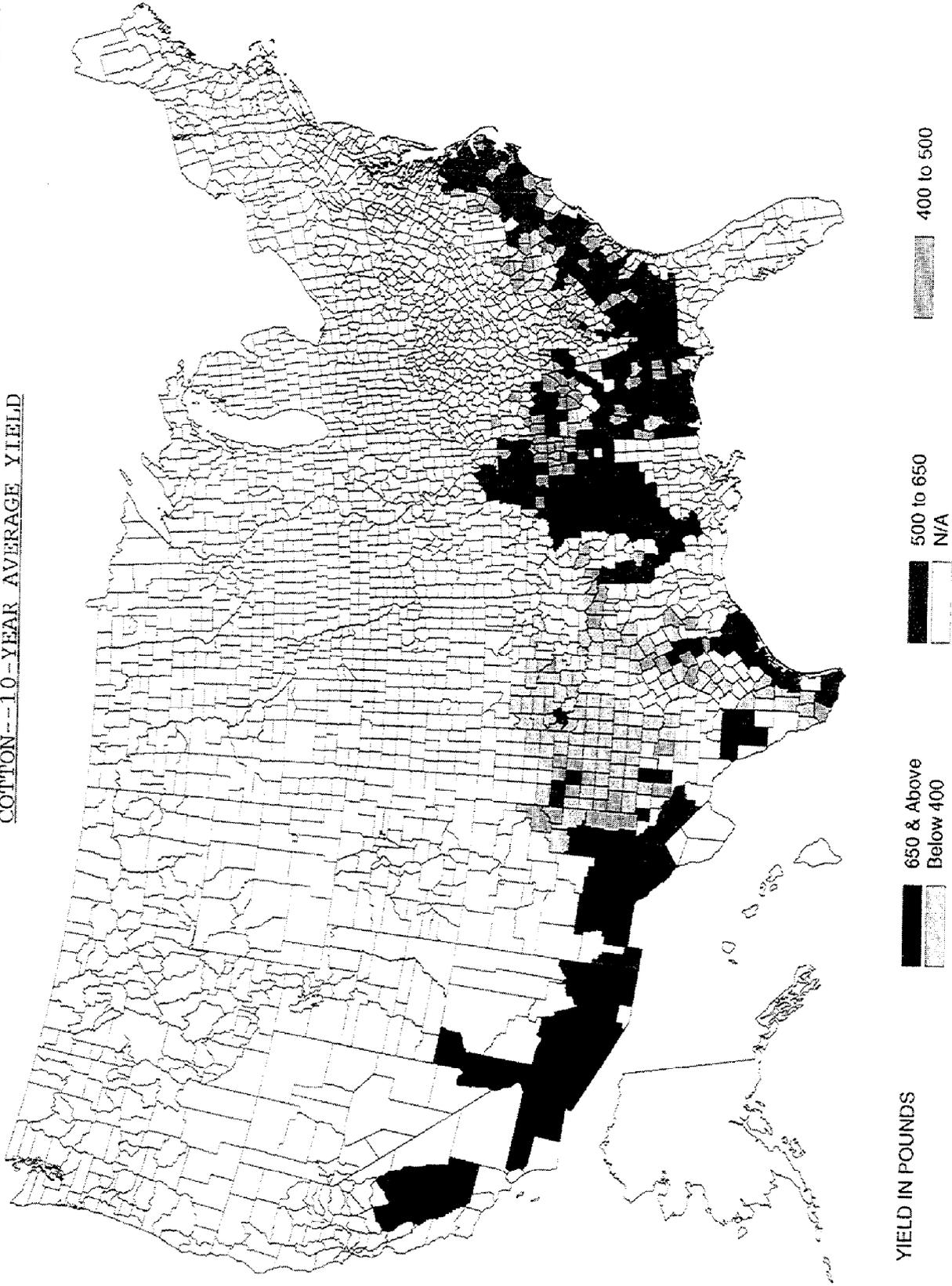
WHEAT--10--YEAR AVERAGE YIELD



SOYBEANS -- 10-YEAR AVERAGE YIELD



COTTON--10-YEAR AVERAGE YIELD



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