

NEW YORK'S SOYBEANS: FROM NOTHING TO SOMETHING SINCE 1980

Thomas A. Rumney
Center for Earth and Environmental Science
Plattsburgh State University
101 Broad Street
Plattsburgh, New York, 12901

ABSTRACT: *On May 23, 2007, two New York State senators announced a state award of four million dollars for the creation of a Center for Liquid Biofuels at a SUNY campus. This accented the rapid and unexpected growth of a relatively new crop in New York; soybeans. Almost unheard of on New York farms before 1970, soybeans have recently spurred to importance in New York, and have added a positive and profitable activity to an otherwise languishing agricultural sector. This paper examines the geographical dimensions of the development and spread of soybean cultivation in New York over the past twenty-five years.*

INTRODUCTION

On May 23, 2007, New York State senators James Seward and Thomas Libaus announced a state grant of \$4 million for the creation of a Center for Liquid Biofuels at a SUNY campus. This has occurred in addition to the establishment of an ethanol production facility at a former "Miller" brewery in Central New York (Fulton), near Syracuse. These developments accent the rapid and unheralded growth of a relatively new crop in New York; soybeans. Almost unheard of before 1970, soybeans have spurred to comparative importance in New York's agricultural sector and have added a positive and profitable commodity to an otherwise languishing agricultural industry for the state. This paper examines many of the geographical dimensions of the development and spread of soybean cultivation in New York over the past twenty-five years.

BACKGROUND

Soybeans have been a commercial crop in the United States since the first two decades of the 20th century. By 1920, there were approximately 190,000 acres of U.S. farmland in soybeans, mostly in Alabama, Kentucky, North Carolina, Virginia, and Missouri (Rumney, 1992). Soybean production literally exploded during and after the Second World War, and became a major crop for the farmers of the Middle West and the Southeast in the United States (Rumney, 1988, 1990, and 1998). American farmers produced almost 3.2 billion bushels of soybeans in 2006, and were the leading exporters of soybeans and soybean meal in the world (National Agricultural Statistics Service, NASS). By 2006, the farmers in such states as Illinois, Iowa, Indiana, and Missouri had huge portions of their farm acreage planted in soybeans. These acreages included 8,29,300 for Illinois, 8,612,800 for Iowa, 4,783,000 for Indiana, and 467,200,00 for Missouri (NASS). These same four giants of soybean production harvested 353 million bushels, 430 million bushels, 211 million, and 165 million bushels, respectively, as well (NASS). In addition to these "big producers," a number of areas on the margins of many of these soybeans "giants" are also beginning to both develop soybean cultivation, and more importantly, get involved with it. New York State has become one of these additional production areas.

Soybean cultivation and harvesting in New York State became a "recorded" data resource in the early 1930s (1934, according to the NASS). In 1934, an estimated 1000 acres were harvested in the state, and some 15,000 bushels were recovered. Aside from a war-time bulge of cultivation during World War Two, New York's farmers planted less than 10,000 acres of soybeans until 1973 (NASS). From that time, however, soybeans planting and harvesting slowly, but steadily, increased. Two other influential variables coincided with production and acreage increases. These were the yields per acre of soybeans grown in New York and the prices paid per bushel for them.

The first year with data available for New York State soybean yields per acre was 1934. That figure was 15 bushels per acre, across the state. By 2006, that had increased to 46 bushels per acre. Obviously, a result of much genetic improvement and cultivation improvement, this increase of over 300% in yields played a major and positive role in the expansion of soybean planting in the state. Additionally, New York farmers received \$1.42 a bushel for soybeans in 1934, and \$6.19 a bushel in 2006. Even when inflation is factored in, this also was a positive stimulus for New York farmers to plant and harvest soybeans (NASS). Plus, the domestic and export markets for soybeans

had massively expanded by 2006. Much of that market demand was associated with livestock and poultry feed, some human food products, and the use of soybean oils for various industrial products such as paints and lubricants. Yet, maybe the most significant recent encouragement for more cultivation of soybeans in the state was the sudden and loud encouragement given by both the state government and manufacturers using soybeans, and other commodities such as corn, for ethanol fuels produced in the state (Table 1).

Table 1. Soybean Production in New York State

Year	Number of Farms	Acres Harvested	Bushels Harvested
1969	221	4,096	100,077
1974	396	12,385	322,921
1978	498	24,050	539,809
1982	440	24,403	583,577
1987	382	25,059	942,410
1992	627	48,107	1,143,324
1997	1,032	107,315	3,976,646
2002	1,128	138,435	4,472,202
2006 (est)	(d)	198,000	9,108,000

(d) data not available

Sources: U.S. Census of Agriculture for 1969-2002, with 2006 updating.

REGIONAL PATTERNS AND EXPANSION

While small scale and experimental plantings of soybeans occurred in several counties across the state from the First World War to the present, there has been a clear and sustained pattern of location for the production of soybeans (Tables 2 and 3). While that growth in interest and production of soybeans occurred, there also was from 1969 to 2006 a serious loss of farms in New York. The 1969 total number of farms in the state was 51,909, but by 2006 that number had declined to 35,000, or a loss of 35.6 percent. In the ten leading counties for soybean cultivation, located in two areas of the state identified by Thompson in his text on New York, the loss was even greater. These ten counties had 12,443 farms in 1969, but by 2006, that number had dropped to 7,290, which was an even larger decline than that of the entire state, at 41.4%. Despite these large declines in numbers of farms both in the state as a whole, and in the specific counties of this study, soybeans cultivation expanded and developed at a significant level over the same time period. These regions were identified by Thompson as the “Lake Ontario-Lake Erie Plain” and the “Central Mixed farming Region” immediately to the interior and in a somewhat more elevated though still fairly flat area of the state (Thompson 1977). Blessed with deep productive soils, a long growing season of up to 180 days a year, abundant rainfall, and locations in areas well serviced by transportation systems, these portions of the state were the original foci for soybeans in New York, and continue to be so. Specific counties have also specialized in soybeans. These central New York counties include Seneca, Cayuga, Wayne, Ontario, Livingston, and Genesee counties (Tables 3-5). It was not by chance that both the new biofuels center (at the Morrisville campus of SUNY, near Syracuse) and the new processing plant for biofuels at the village of Fulton, are also located in this area. As noted in Figures 2-5, central New York’s counties have consistently been the main producers of soybeans in the state, and the main beneficiaries of their profits. None of these counties experienced as much as 1 percent of their farm cash receipts coming from soybeans in 1969. Yet, all of these counties (except Genesee in the west) saw more than 3% of their farm receipts coming from soybeans by 2006, and Seneca county, located between Cayuga and Seneca lakes, saw 12% of its farm receipts coming from soybeans (Figures 1-6).

Table 2. Ten Leading Counties in Soybeans Production for New York State, 2006: Total Number of Farms for 1969 and 2006

County*	Number of Farms		% Change
	1969	2006	
1. Cayuga	1,495	825	-44.8%
2. Seneca	585	435	-25.6%
3. Wayne	1,624	850	-47.7%
4. Ontario	1,364	840	-38.4%
5. Livingston	1,038	750	-27.7%
6. Niagara	1,654	750	-54.7%
7. Onondaga	1,159	680	-41.3%
8. Monroe	1,085	595	-45.2%
9. Genesee	1,028	545	-47.0%
10. Oneida	1,411	1,020	-27.7%

*Listed in order of acres harvested in soybeans in 2006.

Table 3. Ten Leading Counties in Soybeans Production for New York State, 2006: Total Acres in Farms for 1969 and 2006

County*	Land in Farms, in Acres		% Change
	1969	2006	
1. Cayuga	277,954	233,000	-16.2%
2. Seneca	122,135	124,600	+2.0%
3. Wayne	228,791	161,700	-29.3%
4. Ontario	242,716	190,500	-21.5%
5. Livingston	249,290	205,000	-17.8%
6. Niagara	171,937	144,900	-15.7%
7. Onondaga	204,966	153,000	-25.4%
8. Monroe	156,405	104,400	-33.3%
9. Genesee	196,648	173,800	-11.6%
10. Oneida	319,806	216,000	-32.5%

*Listed in order of acres harvested in Soybeans in 2006.

Table 4. Ten Leading Counties in Soybeans Production for New York State, 2006: Total Cash Receipts for All Products for 1969 and 2006

County*	Total Cash Receipts		Adjusted to 1969 values for 2006
	1969	2006	
1. Cayuga	\$5,963,279	\$140,473,000	\$25,285,140
2. Seneca	\$3,474,857	\$50,939,000	\$9,169,020
3. Wayne	\$17,606,191	\$122,987,000	\$22,137,660
4. Ontario	\$9,192,273	\$98,464,000	\$17,723,340
5. Livingston	\$6,195,768	\$93,535,000	\$16,836,300
6. Niagara	\$8,953,162	\$70,539,000	\$12,697,020
7. Onondaga	\$4,714,931	\$36,480,000	\$6,566,400
8. Monroe	\$9,320,611	\$65,199,100	\$11,788,200
9. Genesee	\$6,884,159	\$139,995,000	\$25,199,100
10. Oneida	\$3,145,821	\$86,344,000	\$15,541,920

*Listed in order of acres harvested in soybeans in 2006.

New York's Soybeans

Table 5. Percent of 2006 Total Farm Receipts From Soybeans in Top Ten Producing Counties for 2006

County	Receipts	% of County Receipts, 2006
1. Cayuga	\$7,797,661	5.6%
2. Seneca	\$6,181,159	12.1%
3. Wayne	\$5,743,919	4.7%
4. Ontario	\$3,485,703	3.5%
5. Livingston	\$4,647,604	5.0%
6. Niagara	\$3,485,703	4.9%
7. Onondaga	\$3,106,976	3.4%
8. Monroe	\$3,152,629	4.8%
9. Genesee	\$2,391,317	1.7%
10. Oneida	\$3,106,976	3.6%

(average price per bushel=\$6.43)

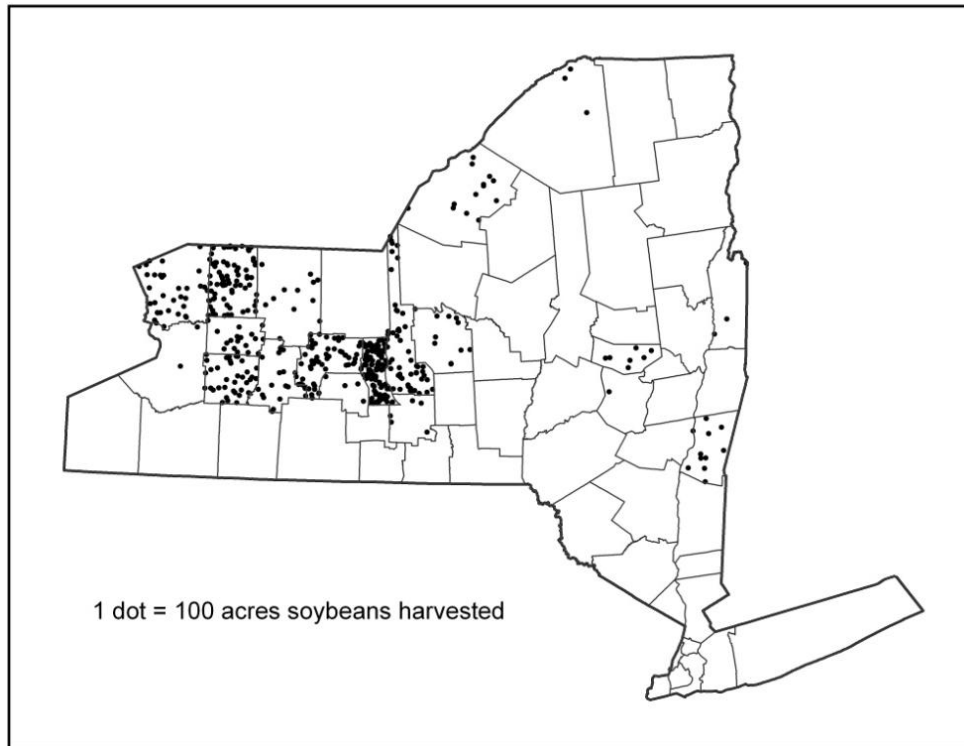


Figure 1. Soybeans: 1982 acres harvested.

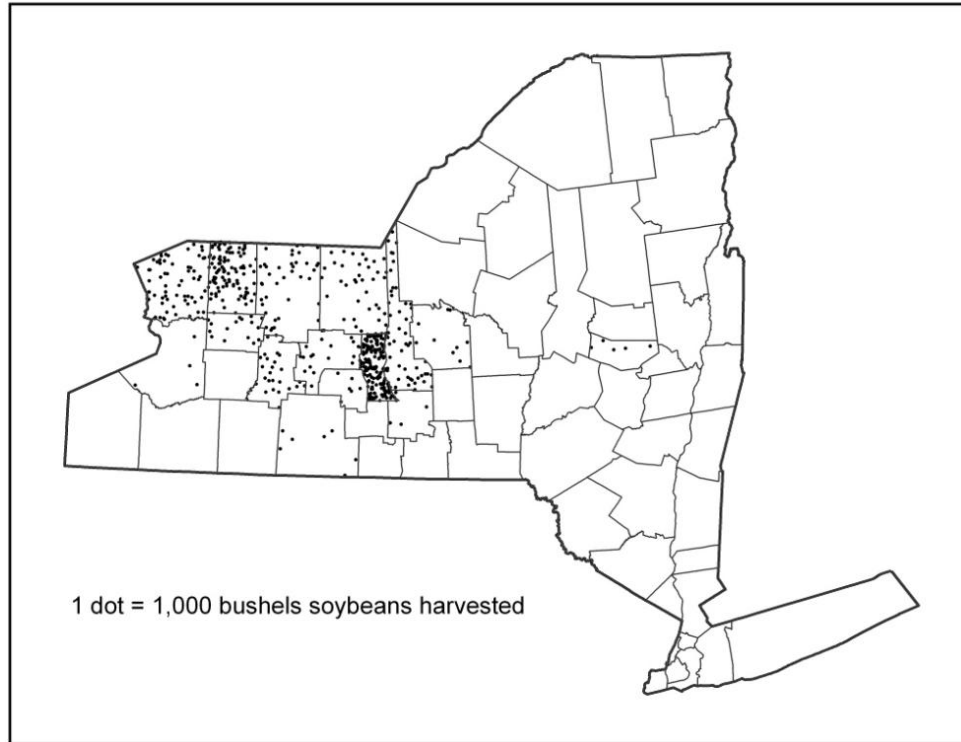


Figure 2. Soybeans: 1992 acres harvested.

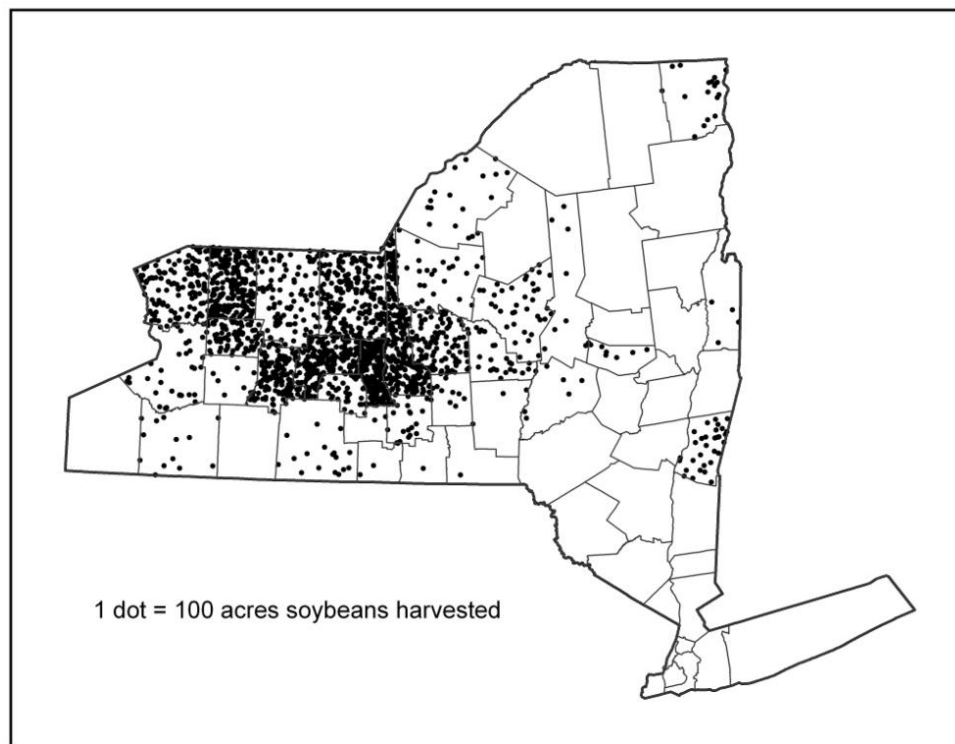


Figure 3. Soybeans: 2006 acres harvested.

New York's Soybeans

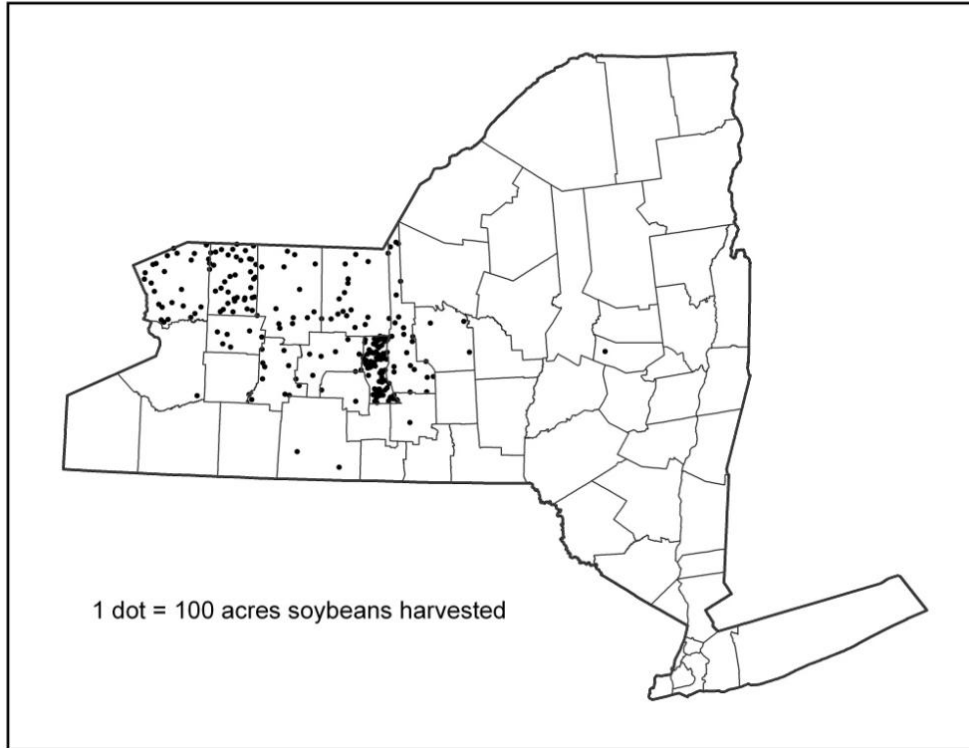


Figure 4. Soybeans: 1982 bushels harvested.

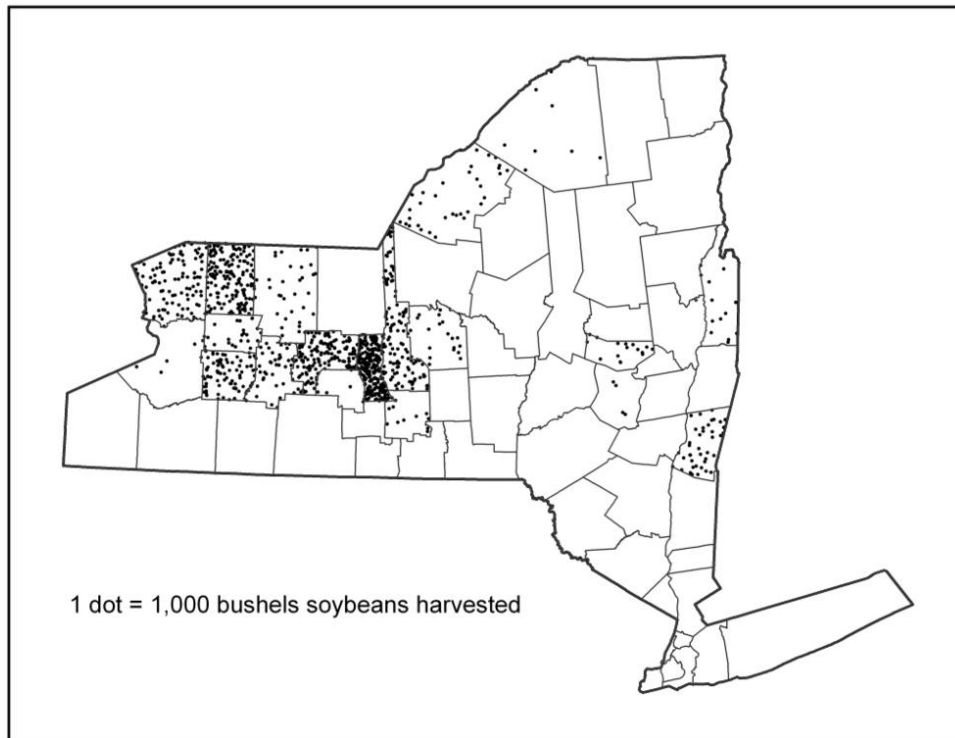


Figure 5. Soybeans: 1992 bushels harvested.

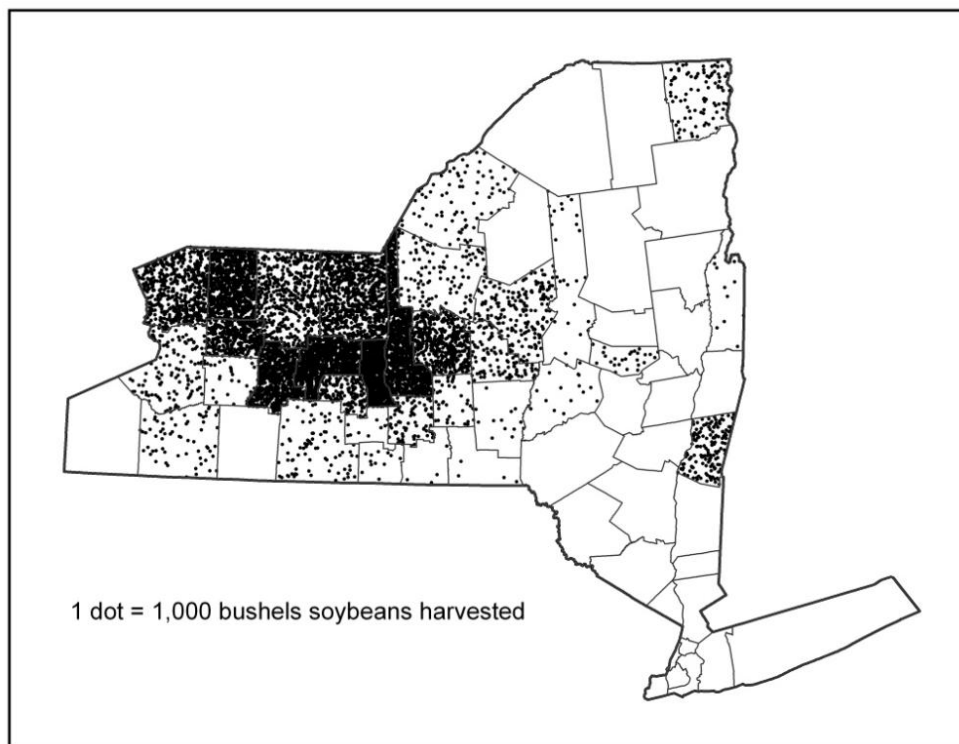


Figure 6. Soybeans: 2006 bushels harvested.

REFLECTIONS AND CONCLUDING COMMENTS

One cannot and should not claim that New York has suddenly overtaken the states in the Midwest and South in soybeans cultivation and harvests. This has not happened! Yet, from a very insignificant production before the 1970s, New York today has rapidly become a secondary production area for “the bean.” In 1982, New York farmers planted only 24,403 acres in soybeans and harvested approximately 583,000 bushels. In that same year, Illinois, Iowa and Missouri planted 9,500,000 acres, 8,600,000 acres, and 6,950,000 acres, and harvested 366,990,000 bushels, 320,625,000 bushels, and 184,275,000 bushels, respectively. By 2006, Illinois, Iowa, and Missouri planted approximately 8,293,000 acres, 8,612,000 acres, and 4,672,000 acres, and harvested approximately 353,740,000 bushels, 430,739,000 bushels, and 165,947,000 bushels, respectively (U.S. Census of Agriculture, 1982 and 2007). This rise from nearly nothing provided the generally declining New York agricultural sector with a healthy boost in profits and brought back into production lands that were being steadily abandoned by the state’s farmers.

The recent expansion of soybeans production by New York farmers (mainly in the central and western portions of the state, but also in more peripheral areas to the east and north, has provided the state’s agricultural sector with a valuable and much needed economic transfusion. Plus, once the state’s biofuels productive capacities become a reality, this increase will only get bigger and more expansive, and will push production into the more peripheral areas of the state. These peripheral areas, if anything, need such agricultural stimuli even more than do the more productive farms of the state’s central and western areas. Soybeans will, of course, continue to be used for animal and poultry feed, some human foods, and a growing variety of industrial uses. Potentially, the manufacturing of biofuels could be the most important stimulus for such expansion, however. As of now, the main inhibitors for such biofuel production are found more in the distribution, sales, and use (in converted vehicle engines), than in the actual cultivation of soybeans. Much more to this story will unfold over the next few years. But, an interesting beginning has unfolded in New York’s “new” agriculture.

REFERENCES

- National Agricultural Statistics Services, U.S. Department of Agriculture, 1982, 1992, and 2006. Washington, D.C.
- Rumney, T. A. 1988. Ohio Soybeans Production: A Geographical Inquiry. *Ohio Geographer* 16:57-67.
- Rumney, T. A. 1990. Regional Agricultural Change in Virginia, Maryland, and Delaware. *Virginia Geographer* 22: 44-52.
- Rumney, T. A. 1992. Agricultural Changes: The Rise of Soybeans. *Geographical Perspectives* 63: 13-22.
- Rumney, T. A. 1998. Developing Spatial Patterns and Changes in Illinois Soybean Production: 1940 to the Present. *Bulletin, Illinois Geographical Society* 40: 8-20.
- Thompson, J., ed. 1977. *Geography of New York*. Syracuse: Syracuse University Press.
- U.S. Census of Agriculture*; 1969, 1974, 1978, 1982, 1987, 1992, 1997, 2002, and 2006. Washington, D.C.: U.S. Government Printing Office.