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Economic Impact of the Northern Corn Processor's Cooperative Proposed Corn Wet Milling Facility

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Additional processing of agricultural commodities within the Upper Great Plains region has frequently been identified as an important strategy for economic development. If agricultural commodities currently shipped out of the region could be processed at facilities located within the area, additional jobs and income and an expanded tax base could result within the state and region. The Northern Corn Processor's Cooperative (NCPC) has proposed a corn wet milling plant, which would be located in the three-state area (North Dakota, South Dakota, and Minnesota) bordering the Southern Red River Valley. The *purpose* of this report is to estimate the economic impact of the plant, assuming it were located in North Dakota.

The North Dakota Input-Output Model (used in this analysis) consists of interdependence coefficients or multipliers that measure the level of business activity generated in each economic sector from an additional dollar of expenditures in a given sector. (A sector is a group of similar economic units, e.g., the firms engaged in retail trade make up the retail trade sector.) For a complete description of the input-output model, see Coon et al. (1985 and 1989). This model estimates the changes in gross business volume (gross receipts) for all sectors of the state economy that arise from the direct expenditures associated with construction and operation of the corn processing plant. The increased gross business volumes are used to estimate secondary employment and tax revenues based on historic relationships. While the North Dakota I-O Model was used, the projected business volumes and employment generated would not occur entirely within the state.

This analysis follows the assumptions of the corn wet milling feasibility study prepared by Senechal, Jorgenson, Hale & Co. (1994), supplemented with additional information from Northern Corn Processor's Cooperative. The proposed plant is assumed to have a grind capacity of 72,000 bu. of corn per day and would process about 25.2 million bu. per year when in full operation. Full operation is assumed to be achieved in 1997, at which time about 150 persons would be employed directly. The facility would produce high fructose corn syrup (HFCS), starch, corn gluten feed, corn gluten meal, and corn germ.

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Plant construction is assumed to result in direct expenditures to in-state *entities* of about $235 million (Table 1). Plant operation impacts are addressed through two scenarios. In the first scenario, the plant is assumed to operate without profit with annual direct impacts of $29.7 million (Table 1). In the second scenario, an annual profit of $20 million is assumed with $15 million allocated to the household sector and $5 million representing increased federal personal income tax payments (i.e., a leakage from the regional economy).

Table 1

Estimated Direct New Expenditures
From Corn Processing Plant (25.2 million bu/yr)

I/O Sectors	Plant Construction	Plant Operation (annual) Without Profit	Plant Operation (annual) With Profit
		$000	
Agriculture, livestock			
Agriculture, crops[a]			
Nonmetal mining			
Construction	229,000		
Transportation		1,260	1,260
Communication and public utilities		3,927	3,927
Agricultural processing and misc. manufacturing			
Retail trade		6,100	6,100
Finance, insurance, and real estate	6,000	11,060	11,060
Business and personal service		2,223	2,223
Professional and social service		50	50
Households		4,900	19,900
Government		203	203
TOTAL	235,000	29,723	44,723

[a]Payments to corn producers were not included in the estimated direct impacts because the grain was assumed to be exported from the state in the absence of a processing plant.

The total annual direct impacts under this scenario are $44.7 million. Major direct expenditures go to the *household* sector (wages and profits), *finance, insurance, and real estate* (primarily interest and insurance payments), *retail trade* (various supplies), *communications and public utilities, business and personal services,* and *transportation* sectors. Since this study addresses the net impact to the state and regional economy

arising from the corn processing plant, expenditures for corn were not included in the direct impact. The rationale for not including the corn purchases was that the grain would have been exported from the state (region) at the same value as received from the cooperative.

The direct expenditures associated with plant construction would result in a total, one-time impact of about $582 million (the $235 million of direct expenditures plus about $347 million of indirect impacts). Plant construction would also result in about 7,129 person-years of secondary employment (Table 2).

The direct expenditures associated with plant operation would generate total annual impacts of about $90 million under the no-profit scenario and $136 million under the with-profit scenario (Table 2). Under the with-profit scenario, the annual direct expenditures of $44.7 million would result in an additional $91.1 million of gross business volume in other sectors of the state and regional economy. Sectors with major impacts include *households*, *retail trade*, and *finance, insurance, and real estate*. The facility is expected to employ about 150 persons directly, and about 1,567 secondary jobs would be created through the multiplier effect. Sectors which would have substantial employment impacts would include *retail trade* (about 335 jobs), *finance, insurance, and real estate* (about 153 jobs), and *communications and public utilities* (about 112 jobs) (Table 3).

Additional business activity from the corn processing plant would generate more state tax revenues. Additional sales and use tax, personal income tax, and corporate income tax receipts associated with the corn processing facility would total about $2.5 million annually during plant operation under the with-profit scenario, compared to $1.6 million under the no-profit scenario (Table 4). Plant construction would generate a one-time tax revenue impact of about $7 million. The estimates of tax revenues, although based on North Dakota's tax structure, would likely be shared with nearby states.

A corn processing plant could provide increased income for its members and also additional jobs, gross business volume, and tax revenues for the regional economy. Instead of exporting raw feed grains, a processing plant represents an opportunity to increase the value of the region's agricultural products *before* they leave the region. The economic benefits of adding value to agricultural products before they leave the region can be expected to be shared widely.

Table 2

Estimated Total (Direct Plus Secondary) Impact From Corn Processing Plant

I/O Sectors	Plant Construction			Annual Plant Operations (Year 1997)					
				No Profit			With Profit		
	Direct	Secondary	Total	Direct	Secondary	Total	Direct	Secondary	Total
	$000			$000			$000		
Ag, livestock		8,225	8,225		1,849	1,849		2,860	2,860
Ag, crops		3,289	3,289		847	847		1,246	1,246
Nonmetal mining		6,945	6,945		135	135		221	221
Construction	229,000	11,917	240,917		1,916	1,916		3,269	3,269
Transportation		2,477	2,477	1,260	331	1,591	1,260	471	1,731
Communication and public utilities		14,624	14,624	3,927	3,053	6,980	3,927	4,635	8,562
Agricultural processing and misc. manufacturing		5,163	5,163		1,442	1,442		2,067	2,067
Retail trade		97,948	97,948	6,100	16,222	22,322	6,100	27,393	33,493
Finance, insurance, and real estate	6,000	20,022	26,022	11,060	3,593	14,653	11,060	6,115	17,175
Business and personal service		7,032	7,032	2,223	1,572	3,795	2,223	2,479	4,702
Professional and social service		9,695	9,695	50	1,940	1,990	50	3,413	3,463
Households		146,649	146,649	4,900	24,218	29,118	19,900	32,504	52,404
Government		12,528	12,528	203	2,848	3,051	203	4,468	4,671
TOTAL	235,000	346,514	581,514	29,723	59,966	89,689	44,723	91,141	135,864
Secondary Employment (FTE Jobs)			7,129			1,122			1,567

Table 3

Estimated Secondary Employment
From Corn Processing Plant

I/O Sectors	Plant Construction	Plant Operations	
		Without Profit	With Profit
Construction	3,764	30	51
Transportation	206	132	144
Communications and public utilities	192	92	112
Retail trade	979	223	335
Finance, insurance, and real estate	232	131	153
Business and personal service	469	253	313
Professional and social service	718	147	256
Other[a]	569	114	203
TOTAL	7,129	1,122	1,567

[a]Includes agriculture, nonmetal mining, agricultural processing/ miscellaneous manufacturing, and government.

Table 4

Estimated Revenue From Selected State Taxes
Resulting From Corn Processing Plant

Tax	Plant Construction	Plant Operation	
		Without Profit	With Profit
	$000		
Sales and use	4,535[a]	1,034	1,551
Personal income	1,906	379	681
Corporate income	545	170	232
TOTAL	6,986	1,583	2,464

[a]Sales and use tax receipts result from secondary spending, since it was assumed direct construction spending would be exempt.

References

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