THE STATUS OF EDUCATION IN AND ABOUT AGRICULTURE

1994 UPDATE

Minnesota Education in Agriculture Leadership Council

August, 1994

Minnesota Education in Agriculture Leadership Council

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Dear Stakeholders in Agriculture:

The Minnesota Education in Agriculture Leadership Council (MEALC) was formed by the Minnesota Legislature in 1990. The twelve member council is appointed by the Governor.

MEALC has five major objectives:

1) To build and maintain an awareness of education in agriculture and its importance and continued need among policy makers at all levels in Minnesota.

2) To identify critical in-service needs for agricultural educators.

3) To serve as a link between the agri-business sector and education for communicating mutual concerns, needs and projections.

4) To provide coordination and articulation of education in agriculture for all agencies and institutions in Minnesota.

5) To gain broad public support for education in agriculture in Minnesota.

In 1992 MEALC published the report titled "*The Status of Education In and About Agriculture.*" It was the first time a comprehensive view of the magnitude of agricultural education programs from elementary schools through adult studies had been compiled and published.

Enclosed is a copy of "*The Status of Education In and About Agriculture-1994 Update.*" I hope you will find the information in the report informative and useful.

If you would like any further information pertaining to the report, please contact Dr. Edgar Persons at the University of Minnesota (612-624-3748). Dr. Persons compiled the data for the 1992 report and the 1994 update.

I want to thank the people who supplied the data used in the report. Your assistance is greatly appreciated.

Sincerely,

Paul Nesseth

THE STATUS OF EDUCATION IN AND ABOUT AGRICULTURE

MINNESOTA EDUCATION IN AGRICULTURE
LEADERSHIP COUNCIL

Compiled by:
Edgar Persons
University of Minnesota
MEALC

Report Number 4-8-94
August, 1994

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THE STATUS OF EDUCATION IN AND ABOUT AGRICULTURE

1994 UPDATE

Education in and about agriculture occurs in many places and takes many forms. Most of the formal education occurs in one of the public education systems charged with education of youth and adults. But much of the education in agriculture also occurs in more informal settings. Agricultural education through the Minnesota Extension Service and through the educational programs of business and industry are two primary examples.

One of the tsks of MEALC is to assist in the coordination of education in and about agriculture wherever it occurs so that the public is well served by the systems and agencies it supports to provide adequate education to meet the needs of the agricultural industry.

In order to assist in coordination, it is necessary to know the magnitude of the educational enterprise in each of the agencies or organizations that has some role in education in or about agriculture. MEALC began that task in 1992 with the publication of the first report titled The Status of Education in and About Agriculture. It was the first time interested persons were able to get a comprehensive view of the magnitude of the educational enterprise in agriculture from elementary school through programs for adults. This is the second edition of that report, using data supplied by the administrators or supervisors of each of the programs reviewed. This report incorporates both the data from the previous edition and the new data representing the enrollment status of education in or about agriculture in the fall of the 1993-94 school term, and the latest graduation data available from the respective agencies or systems..

ELEMENTARY SCHOOLS

While there are many agricultural agencies and organizations that make study materials available for use in elementary classrooms, the only agency with an ongoing program of education about agriculture is the Minnesota Ag in the Classroom program headquartered in the Minnesota Department of Agriculture. The MAITC program does not have "enrollees" nor does it have "graduates" as do some of the other programs, but it provides a fairly broad range of educational opportunities for elementary students. The scope of those activities is as follows:

Minnesota Agriculture in the Classroom (M-AITC)

Education in and about agriculture is a life-long learning process that begins in the formative years and reaches many and varied audiences. Starting with elementary schools and other youth groups, Minnesota Agriculture in the Classroom (M-AITC) provides a foundation for **education about agriculture**. This understanding and awareness of agriculture and how it impacts each of us daily is mostly taught in an interdisciplinary way, with teachers and other youth leaders being encouraged to connect key agricultural concepts with social studies, science, langauage arts, math, current events, global studies, and environmental education.

M-AITC is a unique public/private partnership with the Minnesota Department of Agriculture serving as the lead state agency. Currently, eighty-eight (88) other businesses and organizations provide valuable funding dollars and countless in-kind support for key projects

Key program initiatives include:

- **MINNESOTA AGRICULTURE MAGAZINE** and Teacher Guide Series, a popular quarterly magazine written for students in grades 4-6 and distributed free statewide to over 1,100 public and nonpublic schools. It is estimated that over 2000 teachers are directly impacted each year with this student AgMag Series.

- A teacher-friendly **MINIGRANT Program**, where K-12 teachers can receive up to $200 for special projects aimed at integrating agriculture into their curriculum. For school year 1993/94, M-AITC has awarded 49 grants, totaling $8,600.

- M-AITC is helping coordinate Twin Cities metro school visits from businesses and producers in agriculture. The last event ....Farm-City Week in November of 1993...saw 57 volunteers working in 45 metro schools, and 191 classroom teachers and 5400 students were impacted with these Ag in the Classroom presentations.

- Development and distribution of teacher-directed Ag-tivity Books for grades K-3/4-6/ and a new "Crossing the Curriculum with AGRICULTURE" resource book for secondary teachers.

SECONDARY AGRICULTURE PROGRAMS

Instructional programs in agriculture have been offered in secondary schools in Minnesota since the passage of the Putman Act by the Minnesota Legislature in 1909. There were only 208 highschools in Minnesota at that time, a few of which had already experimented with prograwms or courses in agriculture, manual training or home economics. The Putman act provided funds for ten schools to establish manual training, domestic economy and agriculture in high school, grade, and consolidated schools of the state.

It was the passage of the Smith-Hughes act of 1917 that firmly established agriculture as one of the vocational subjects of high priority in secondary education. Under the auspices of this and subsequent acts to expand and modify the Federal role of education in vocational agriculture, programs of agriculture rapidly expanded. By 1964 there were 286 departments of agriculture in Minnesota secondary schools. These departments by the late 1960's employed about 350 secondary teachers, and by the early 1970's had enrollments in excess of 19,000 students expanding to enrollments in excess of 22,000 by the mid-70's. The eventual decline in departments, teachers and students mirrored the decline in the school age population in many rural districts, reaching a low of 193 departments in 1992-93 and a low in student enrollment of about 12,000 in 1989-90.

Table 1. Secondary Programs in and About Agriculture

Year	No. of Teachers Secondary (4)	No. of Program Sites(3)	Enrollments Ag Courses
1970-71	314	268	19,430
1975-76	343	276(1)	22,288
1980-81	343	280	21,500
1988-89	290	245(2)	12,932
1989-90	233	209	11,966
1990-91	226	206	11,979
1991-92	223	193	14,826
1992-93	225	194	16,160

(1) 1976-77
(2) 1986-87
(3) The program site may serve two or more schools. The actual number of communities served by the 193 program sites has not been calculated.
(4) Not all teachers are full time

As noted in Table 1, secondary program enrollment, program sites and number of secondary teachers has started to rise, after a long decline. A map of the program locations would show that almost all of the agriculture programs are located outside of the major metropolitan communities in Minnesota, with a few notable exceptions.

Secondary agriculture in Minnesota in offered primarily in grades 9-12. The agriculture/agribusiness/environmental science programs (all referenced here as "Agriculture") are linked closely with the FFA organization. This national organization for youth provides a vehicle for assisting students to develop leadership, citizenship, interpersonal relations, communications and personal development skills in the context of agriculture. The award/reward structure of the organization provides personal recognition for outstanding achievements both in the broad field of agriculture and in leadership.

MINNESOTA TECHNICAL COLLEGE PROGRAMS

The Minnesota Technical College offerings in agriculture in regular day time programs are once more on the increase. From a high of 20 different institutions in which post secondary agriculture was offered and a teaching cadre of about 100 instructors in the 1970's, programs declined to only 12 locations in 1993. However, the number of full time instructors and full year equivalent enrollments has shown a dramatic increase from 1991-92 to 1992-93. Table 2 records the scope of diploma and AAS programs in five broad categories.

Other programs in the Technical College System include part time management programs for farm producers, beginning farmer programs for persons just getting started in the farm business and enterprise classes for improved skill development and technology transfer. These programs are also reported in Table 2.

Management programs for general farmers, and sheep producers both show a modest decline between fiscal year 1991 and fiscal year 1993. The specialty crop program, though small, has increased slightly. It is speculated that the decline in number of enrollees in the managment programs is due in part to the decline in farm numbers in Minnesota and in part to the increased costs of instruction and modest economic returns from farm businesses. Access to farm management programs has generally been maintained by redefining the territories served by the various program locations.

Table 3 provides a detailed accounting of the enrollments in each of the 26 diploma/AAS Degree programs reported. It should be noted that some of the 26 programs were discontinued between 1991 and 1993 and some were added.

Table 2. Minnesota Technical College System -- Summary of Agriculture, Agribusiness, Agriculture Mechanics, Horticulture Program Information FY 91 & FY 93

Program	Locations		Lic-Staff		Lic-Staff FTE		Enrollment		FY 91/93 Graduates		FY91/93 FYEs	
Diploma/AAS Programs	FY91	FY93	FY91	FY93	FY91	FY93	FY91	FY93	FY91	FY93	FY91	FY93
Agriculture Business/ Production/Equipment Mechanics, Horticulture/ Landscape	14	12	51	58	38.9	47.9	801	1540	229	247	598.1	873.1
Management Programs												
Farm Business Management	81	76	131	123	152.7	143.7	5,425	5,101	N/A		1746.2	1602.2
Lamb and Wool Management	5	5	8	8	9.6		241	158	N/A		81.5	51.0
Specialty Crops Management	1	1	2	3	2.4		78	107	N/A		26.0	28.3
Other												
Beginning Farmer	26	NR	25	NR	3.6	.96	275	NR	N/A		2.75	8.80
Enterprise	30	NR	30	NR	2.1	.51	386	NR	N/A		2.5	4.25

NR = Not Reported
N/A = Not Applicable

Table 3. Minnesota Technical College System -- Current Status of Diploma/AAS Degree Agriculture, Agribusiness, Horticulture/Landscape and Agriculture Equipment Mechanics Programs FY91 - FY93

MINCIP	College	Program	Lic-Staff FT/PT 91	93	Lic-Staff FTE 91	93	FYEs 91	93
01.0100	Southcentral	Farm Operation and Management	3	3	1.09	1.37	16.4	27.39
	Hutch/Willmar	Farm Operation and Management	7	7	4.33	3.37	55.0	60.32
	Northwest	Farm Operation and Management	3	1	.89	.80	11.0	11.89
	Southwest	Farm Operation and Management	1	1	1.06	1.11	11.0	10.71
01.0119	Hutch/Willmar	Veterinary Technology	3		2.46		9.38	
01.0104	Brainerd/Staples	Poultry Prod. Mgt.	1	-	1.08	-	13.6	-
01.0105	Southcentral	Swine Production Manager	1	1	1.19	1.13	13.2	19.70
01.0106	Hutch/Willmar	Dairy Herd Management	1	1	1.115	1.16	15.1	17.24
01.0117	Alexandria	Aquaculture	2	2	2.16	2.27	24.8	46.86
01.0200	Southcentral	Agri-Business Service Management	2	2	1.14	1.27	16.4	27.11
	Hutch/Willmar	Agri-Business	7	7	2.79	4.13	47.2	72.11
	Southwestern	Agri-Business Technician	1	1	1.00	1.03	22.6	14.24
01.0300	Southcentral	Agri-Business Mechanics	2	2	2.18	2.26	26.2	43.09
	Riverland	Ag/Industrial Diesel Mechanics	1	1	1.03	1.03	16.8	21.07
	Northwest	Farm Tractor/Machine Mechanics	1	1	1.20	1.03	14.5	6.96
	Southwestern	Diesel&Farm Equipment Mechanics	1	2	1.00	1.54	12.5	20.38
	Alexandria	Farm Equip Service Tech	2	-	1.85	-	24.1	-
01.0401	Pine	Taxidermy Technician	1	1	.95	1.01	15.0	19.73
04.0500	Brainerd/Staples	Retail Floristry	-	1	-	.74	-	14.14
	Hennepin		-	2	-	1.70	-	36.27
01.0500	NE Metro	Horticulture	1	1	.60		29.0	
01.0504	Hennepin	Landscape Occupations	1	2	1.22	1.67	30.4	37.49
	Dakota Country	Landscape Horticulture	3	3	3.18	2.96	45.9	57.22
01.0600	Brainerd/Staples	Natural Resource Management	4	4	2.67	5.12	51.5	119.50
01.5099	Anoka	Horticulture Technology Careers	4	6	4.51	5.07	72.9	108.13
	NE Metro	~~Horticulture Technology Careers~~	1	1	.60	.65	13.0	13.07
	Riverland	Horticulture Technology Careers	-	3	-	3.05	-	59.13
		Totals:	51	58	38.9	47.93	598.1	873.13

UNIVERSITY OF MINNESOTA: TWO YEAR TECHNICAL COLLEGES

Waseca Technical College

Until 1992, the University of Minnsota operated two technical colleges; one at Crookston and one at Waseca. The Waseca campus was closed and no longer functions as an educational institution. Data from Waseca are included in this report, however because they form an important part of the history of the availability of agricultural trained personnel for Minnesota's agricultural industry. The curriculum of the Waseca campus was built almost entirely around agriculture, aiming for graduates who would fill mid-level management positions in business and industry or perform jobs as agricultural technicians. The more recent history of Waseca Technical College enrollment is shown in Table 4.

Table 4. Program Enrollment: University of Minnesota, Waseca (Full and Part-time Students, 1988-1990)

	Fall '88	Fall '89	Fall '90
Agricultural Business	350	300	188
Agricultural Industries and Services	87	119	68
Agricultural Production	158	211	225
Food Industry and Technology	9	15	12
Home and Family Services	200	127	149
Horticultural Technology	109	126	104
Veterinary Technology	156	170	160
Other (adult specials)	100	106	136
Total	**1169**	**1174**	**1042**
(Full Time)	**(743)**	**(790)**	**(774)**

University of Minnesota: Crookston

The University of Minnesota: Crookston has a more diverse program than that shown for the Waseca campus. Shown in Table 5 are the data for only the agriculturally related portions of the Crookston campus. In 1993-94 the Crookston campus offered new programs leading to the baccalaureate degree for the first time. There are not yet any graduates of these programs. Most of the 2-year programs have been retained. Table 5 shows the enrollments and the graduates for the two year programs for several periods, but only the enrollments in the newly authorized baccalaureate programs. The total enrollments (2-year and 4-year programs combined) in the Crookston campus have increased considerably between 1991-92 and 1993-94, but have not yet made up for the loss of trained personnel associated with the closure of the Waseca campus facility.

Table 5. College Enrollment and Graduation Statistics: University of Minnesota Crookston, Agriculture Program Areas Only

Program	Graduates 1989-90	90-91	91-92	92-93	Enrollment 91-92	93-94
Agric. Aviation	6	2	4	10	50	31
Agric. Econ/Bus.	4	3	5	9	43	23
Agronomy/Soils	6	12	10	8	38	13
Animal/Dairy Sci.	9	6	9	3	30	17
Equine Science	4	4	1	1	24	14
Horticulture	3	2	6	6	31	21
Mechanized Agric.	6	0	3	1	7	2
Natural Resources	12	16	13	14	71	36
Assoc. of Sci-Agric.	4	1	6	12	4	4
Total	54	46	57	64	298	161

Baccalaureate Degree Programs

	1993-94
Agricultural Industries Sales and Management	46
Animal Industries Management	44
Environmental and Natural Resource Management	64
Plant Industries Management	74
Sub-Total	228
Total	389

MINNESOTA COMMUNITY COLLEGE SYSTEM

Although there are 17 Community College campuses located throughout Minnesota, only two report programs focused on agriculture. The program at the Willmar Communit College is offered jointly with the Willmar-Hutchinson Technical College. The enrollments and graduates are part of the data reported for the Technical college system.

Table 6 Agricultural Programs in Worthington Community College: Enrollments and Graduates: 1993-94

Program	Enrollment: Fall-1993	Graduates: 1993-94
Agribusiness Employment Option	26	11
Agriculture Production Management	6	

The Worthington Community College has two agricultural programs. The Agribusiness program which culminates in the A.S. degree is reported in a category of "Employment Option". This option includes persons who intend to transfer to a 4-year college to complete a baccalaureate degree as well as those who will terminate their formal education with the A.S. degree. A two year agriculture-production management program is categorized as an "occupational Program" and is considered to be a terminal degree.

STATE UNIVERSITY SYSTEM

Southwest State University, Marshall, is the only campus in the system that offers a specific program in agriculture. The program in Agribusiness has been revised to provide students with an increased emphasis in oral and written communication skills. In addition the students are exposed to the international business arena through case studies, course assignments and instructor involvement in international agricultural business education and training. Concentration areas within the major include farm management, finance, marketing, cooperative management and a science/quantitative focus.

Table 7. College Enrollment and Graduation Statistics Southwest State University, Agriculture Program, Marshall

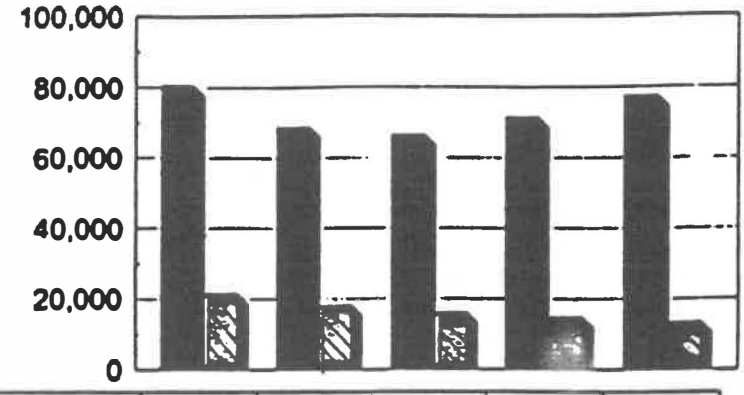
Program	Graduates 1989-90	90-91	91-92	92-93	Enrollment 93-94	91-92	93-94
Agribusiness	10	10	13	12	14	59	57
* Planned Goal for Future	65-70 Majors		15-17 Graduates		10-15 Minors		

COLLEGE OF AGRICULTURE: UNIVERSITY OF MINNESOTA

Enrollments and B.S. level graduates of Colleges of Agriculture throughout the United States have declined since the early 1980's. As illustrated in Figure 1, the decline in total enrollment bottomed out in 1988, and has begun a gradual rise. Graduation of B.S. level students, however has continued to decline. Some of the recovery of total enrollment is attributed to persons in advanced degree programs at the Masters and Ph.D. levels. Enrollments at the University of Minnesota in the College

of Agriculture have been slower to recover from the steep decline than have other agricultural colleges throughout the United States.

Figure 1 COLLEGES OF AGRICULTURE, U.S.A. Enrollment and B.S. Graduates



	84	86	88	90	92
ENROLLMENT	80,579	68,793	66,429	71,553	77,432
BS GRADS	21,560	18,120	16,053	14,800	13,368

Source: Food and Agriculture Education Information System, U.S. Department of Agriculture

Enrollments in the College of Agiculture at the University of Minnesota have followed approximately the same pattern. Table 8 illustrates the graduates in the various major fields of study since 1988-89, and gives the aggregate enrollment in Baccalaureate level and professional masters degree programs.

Following a complete revision of the College of Agriculture curriculum, the major fields of study that were reported in 1988-89 were transformed into a new set of majors through an activity called Project Sunrise. The eleven bulleted majors are the current majors in the College of Agriculture. Students who were already enrolled when the curriculum change occurred could elect to graduate under the old major, thus there are still graduates of majors that no longer exist. As this backlog of students completes their degree programs, only the 11 new majors will remain in the College of Agriculture.

The undergraduate majors in the College of Agriculture are generally not tied directly to departments. Most majors are completed in more than one department, and some in more than one college.

Table 8. University of Minnesota, College of Agriculture
College Enrollment and Graduation Statistics

	1988-89	1989-90	1990-91	1991-92	1992-93	fall only '93
Ag Bus Mgmt				12	14	3
Ag Bus Admin	32	17	29	12	7	
Ag Econ	15	10	12	6	4	
AgEd	16	10	14	11	9	
AgEt **	2					
Ag Ind Mktg			1	13	12	1
Agro	23	14	8	7	4	
An Pl Sys			2	13	26	8
AnSc	18	34	10	16	9	2
Appl Econ			6	19	27	9
Cons Fd Sc	2	2				
Food Sc			9	9	11	2
Food Sc Tech	9	13				
Hort	7	12	8	8	3	
IPM	2		1	2		
Landscp Arch	11					
Nat Res & Env Stu			2	7	7	2
Nutr	3	2	2	4	6	2
Pl Health Tech	1	1				
Soil Sc	4	2	2	1		
Soil/Water Res	4	2	2	2		
Sci in Ag					7	1
Sc Tech Comm		12	12	20	5	
Tech Comm	19	17		3	1	
Total	**167**	**136**	**121**	**157**	**167**	**35**
COA enroll.	**747***	**691**	**751**	**858**	**908**	**866**

1991-92, 1992-93 represent those graduates who were awarded degrees from Fall of the mentioned year to the end of the following second Summer Session.
1993 graduation numbers reflect those students who graduated fall quarter only.

* Does not include agricultural education students who have transferred to the College of Education.

** Agricultural Engineering has a Pre-engineering program. Graduates of Ag Eng are counted in Institute of Technology.

Students in Agricultural Education who have transferred to the College of Education for the culmination of their degree programs are not counted in the enrollment of the College of Agriculture. However, since the degree in Agricultural Education is a joint degree between the College of Education and the College of Agriculture, the graduates are counted in Table 8 data. The undergraduate and post-baccalaureate enrollment in Agricultural Education for the 1993-94 school year (Fall quarter) was 43, with 15 scheduled to graduate before Fall quarter, 1994.

MINNESOTA EXTENSION SERVICE

The Minnesota Extension Service in its annual report does not report individual contacts with agricultural producers and others in the agricultural sectors. The best measure of potential impact is the number of personnel assigned to the agricultural program area. The following table, titled Professional Staff FTE Comparison, tracks the assignment of FTE staff to the agriculture program area for the perod from 1986-1994.

Table 9. Professional Staff FTE* Comparison: Minnesota Extension Service

Year	Ag State & Area Staff	Ag Admin.	County Staff	Ag Total	MES Total FTE	% of Total
1986-87	80.33	9.93	122.0	212.26	442.26	48.0
1987-88	81.33	5.79	124.5	211.62	450.14	47.0
1988-89	79.95	5.83	115.0	200.78	455.46	44.1
1989-90	80.70	5.96	109.5	196.16	461.09	42.5
1990-91	80.48	5.70	114.5	200.68	464.08	43.2
1991-92	89.55	5.24	76.83	171.62	460.16	37.3
1992-93	81.25	5.01	71.56	157.82	407.40	38.7
1993-94	72.79	3.45	72.09	148.33	454.25	32.7

*The FTE total for Agriculture does not include any FTE estimate for Educational Development Systems since the organization has been restructured between 1986-87 and 1990-91. (*FTE=Full Time Equivalent)

The total effect in agriculture, based on FTE total, was a decline of 63.93 FTE or 30 percent from the 1986-87 high. While the total FTE employed in MES has increased slightly (less than 3%) from the 1986-87 level, the proportion of effort directed to agriculture has declined from 48.0 to 32.7 percent. All levels of MES activity in agriculture - state and area staff, administrators, and county level workers - have declined.

PRIVATE INDUSTRY

Private industry shares in the task of education in and about agriculture. The extent of the involvement of the agribusiness community in education has not been determined. One of the goals of MEALC is to complete the inventory of the educational opportunities available to farmers and others engaged in the agricultural sector by assessing the amount of education in and about agriculture done in the private sector. This task will require funds that are currently not available to MEALC.