1992 Corn Club Budget Summary

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Crop enterprise budgets are an important farm management tool. Budgets summarize the cost of production and the returns from a given crop enterprise. Budgets can be developed as 1) projections prior to planting and 2) after harvest to check the economic performance of the crop enterprise. In this way, budgets can be used to 1) estimate cash flow, 2) provide a basis for credit, 3) assist in farm planning, and 4) develop least cost feed rations. They can also be used to help indicate possible areas of inefficiency on your operation. The information contained in these summaries along with farm specific data can be used to help develop corn cost of production projections for the 1993 growing season. Budgets for other crops on your farm can be developed in a similar manner. Land changes have not been reported in any of the budget summaries. Because land charges (principal and interest payments, taxes, rent) are so variable and location specific, the bottom line has been reported in these summaries as "Returns to Land and Management". When preparing your own budgets, land charges should be included so that all relevant costs are considered when gauging the performance of the crop enterprise. The agricultural value of the land should be used rather than the market value. Market value includes the "development" or "speculative" value of the land, which the corn enterprise should not be expected to cover.

Table 1 contains statewide budget summaries for corn grain and silage. Averages, standard deviations, and ranges are given for each budget item. The standard deviation and range give us an idea of the variability of the budget data. The standard deviation can be used to construct confidence intervals for the average values. We would expect about 68% of all farmers to fall within ±1 standard deviation of the average, 95% to fall within ±2 standard deviations, and 99.7% to fall within ±3 standard deviations. For instance, using the returns to land and management from Table 1, we would expect 68% of the grain farmers to fall between $57.64 and $265.04 per acre. The range gives the lowest and highest values reported for each budget item. The results indicate grain farmers spent $31.34 more on average to grow the crop and silage farmers have slightly more money tied up in machinery. The high returns from silage are somewhat misleading, in that only limited opportunities for selling silage may exist and transportation costs associated with the sale of silage have not been included.

Table 2 contains regional budget summaries for corn grain. The state was broken down into four regions comprised of counties with roughly similar production characteristics. The four regions, 1) Southeast, 2) Central Valley, 3) Northeast, Northern Tier and, Central Mountains, and 4) West, are shown in Figure 1. The results indicate that in 1992, Southeast farmers produced corn for the lowest cost per bushel on average, due to their having the highest average yield and lowest cost of production of the four regions.

Table 3 contains budget summaries for corn grain by tillage practice. The three tillage practices represented in the budgets are conventional tillage, minimum tillage, and no-till. In 1992, no-till farmers reported the highest yields, followed by minimum tillage. Total variable costs were highest for minimum tillage, followed by no-till. As expected, herbicide costs are higher and machinery operating expenses lower under no-till. Farmers using minimum tillage reported higher cost for crop drying, while no-till farmers had the highest custom hire charges. Machinery ownership costs were almost twice as high on average for conventional and minimum tillage as no-till. The difference in total cost, along with the higher yield, made no-till the most profitable on average in 1992.

Table 1. Grain and Silage Budget Summaries, Five Acre Corn Club, 1992 Crop Year

	Grain Production Budget Summary (56 records)					Silage Production Budget Summary (11 records)				
	Average	Standard Deviation	Range Low	Range High		Average	Standard Deviation	Range Low	Range High	
Receipts										
Yield (bu.)	159 4	32 9	44 6	210 7	(tons)	25.3	4.0	19 0	32 4	
Price ($/bu.)	$2.26	$0.21	$1 94	$3.00	($/ton)	$28.09	$5.20	$20 00	$40.00	
Deficiency Payment	$0.07	$0.18	$0.00	$0.75		n/a	n/a	n/a	n/a	
Gross Returns	$373 76	$95.40	$93 66	$628.54		$704.39	$120 97	$400.00	$810 75	
Variable Costs										
Seed	$23.86	$6.24	$14.88	$60.00		$22.96	$5.06	$15.46	$33.79	
Fertilizer										
Preplant	$19.35	$24 83	$0.00	$129 94		$5.51	99 77	$0.00	$26 60	
Starter	$18.31	$10.63	$0.00	$46.50		$15 13	$7.82	$0.00	$28.00	
Sidedress	$10.23	$13.00	$0.00	$45.00		$2.22	$6.04	$0.00	$20.00	
Lime	$9.30	$7.37	$0.00	$25.00		$8.09	$4.39	$2.00	$18.00	
Herbicide	$19.43	$7.54	$0.00	$40.00		$21.86	$13.43	$0.00	$49.39	
Insecticide	$6.55	$5 77	$0.00	$16.10		$3.52	$5.29	$0.00	$14.00	
Machinery Operating	$22.70	$19 91	$0.00	$119 63		$27.34	$13 76	$9 85	$52.19	
Grain Drying	$18.00	$26.40	$0.00	$100.05		n/a	n/a	n/a	n/a	
Custom Hire	$6 17	$17 43	$0.00	$116.00		$6.76	$10.58	$0.00	$32.40	
Paid Labor	$9 48	$21 49	$0.00	$144 00		$6.68	$10.59	$0.00	$30.00	
Miscellaneous	$3 49	$7.82	$0.00	$45.00		$7.30	$13.05	$0 00	$46.00	
Interest on Operating Capital	$9 83	$2.30	$0.00	$17.83		$4 70	$1.30	$2.68	$6 61	
Total Variable Cost	$173 72	$58 67	$54 47	$320 76		$132.05	$22 10	$93.86	$165.06	
Fixed Costs										
Machinery Ownership	$38 70	$20.95	$0.00	$125 41		$49.02	$26 48	$10 65	$102.66	
Total Specified Costs	$212.42	$60 42	$114 48	$379 83		$181 08	$23 62	$130 79	$215.61	
Returns to Land and Mgt.	$161.34	$103 70	($196.35)	$373.22		$523.31	$111.31	$269 21	$637 87	
Breakeven Price ($/bu)	$1 45	$0.85	$0.65	$6.50	($/ton)	$7 29	$1.35	$5.35	$9 61	
Breakeven Yield (bu./A)	93 7	24 9	54 2	156.3	(ton/A)	6 6	1.0	4 6	8 2	

Note. Land Charges have not been included in the calculations for Breakeven Price or Breakeven Yield
n/a. not applicable

Table 2. Grain Budget Summaries, by Production Region, Five Acre Corn Club, 1992 Crop Year

	Southeast (20 records)		Central Valley (16 records)		Northeast, Northern Tier, and Central Mountains (10 records)		West (10 records)	
	Average	Standard Deviation	Average	Standard Deviation	Average	Standard Deviation	Average	Standard Deviation
Receipts								
Yield (bu.)	,76.4	18.8	161.3	29 9	119.2	33 9	162.7	27.7
Price ($/bu.)	$2.19	$0 11	$2.36	$0.22	$2.24	$0.27	$2.30	$0.24
Deficiency Payment	$0.01	$0.02	$0.19	$0.27	$0.05	$0 15	$0.05	$0 16
Gross Returns	$386 94	$48.35	$414.52	$113.31	$274.51	$88 01	$381 46	$84 78
Variable Costs								
Seed	$25.59	$8.85	$23 75	$4 23	$21 11	$4 46	$23.37	$2.71
Fertilizer								
Preplant	$17.55	$16.31	$19 63	$28 16	$25 47	$40 16	$16.40	$14 60
Starter	$16.55	$11 72	$18.49	$12.32	$18.58	$8.83	$21.09	$7 41
Sidedress	$8 15	$12.33	$13 16	$14 15	$9 85	$15.34	$10 10	$10 88
Lime	$6 08	$5 18	$11 19	$8.46	$8 14	$5.36	$13.86	$8.57
Herbicide	$18 63	$8 98	$20.24	$7.04	$21 15	$7 94	$18.03	$4 84
Insecticide	$7 09	$5.24	$7 69	$5 93	$3.22	$5.47	$7 00	$6 42
Machinery Operating	$22 64	$25.66	$24.70	$18 77	$27 19	$17 76	$15 12	$5 96
Grain Drying	$13 79	$25.44	$21 95	$21.82	$3 77	$11 92	$34.34	$36 97
Custom Hire	$12.01	$26.54	$3 62	$7 48	$0.30	$0.95	$4 45	$12.07
Paid Labor	$5.41	$13.59	$10.00	$9 61	$20.00	$45.14	$6.28	$8.59
Miscellaneous	$3 71	$10.38	$5 94	$8.26	$2.60	$2.74	$0 00	$0 00
Interest on Operating Capital	$4 68	$1 63	$5.56	$2.03	$4.59	$3.07	$15.42	$21 04
Total Variable Cost	$161 97	$48 23	$185 91	$72 82	$165 97	$50 91	$185 45	$62.47
Fixed Costs								
Machinery Ownership	$32.23	$24 98	$38 73	$16.56	$45 10	$17.53	$45.22	$20.33
Total Specified Costs	$194 19	$43 63	$224 64	$71.52	$211.07	$56.04	$230 67	$69.83
Returns to Land and Mgt.	$192 74	$63 71	$189.87	$109 90	$63 44	$113.05	$150 79	$99 13
Breakeven Price ($/bu)	$1 11	$0.28	$1 44	$0.59	$2.13	$1 62	$1 46	$0.50
Breakeven Yield (bu./A)	89 0	21 0	94 8	26 3	94 1	23.3	101 1	32 4

Note: Land Charges have not been included in the calculations for Breakeven Price or Breakeven Yield.

Table 3. Grain Budget Summaries, by Tillage Practice, Five Acre Corn Club, 1992 Crop Year

	Conventional Tillage (29 records)		Minimum Tillage (19 records)		No-Till (6 records)	
	Average	Standard Deviation	Average	Standard Deviation	Average	Standard Deviation
Receipts.						
Yield (bu.)	150.8	36.6	164.1	27.0	173 6	21.5
Price ($/bu.)	$2.26	$0.21	$2.29	$0.22	$2.24	$0.17
Deficiency Payment	$0.09	$0.21	$0.08	$0.18	$0.00	$0.00
Gross Returns	$357.34	$115.93	$387 59	$66.30	$391.47	$72.20
Variable Costs:						
Seed	$23.65	$4.39	$22.94	$3.28	$27.79	$15.91
Fertilizer						
Preplant	$20.52	$26.87	$16.52	$23.03	$25.88	$25.80
Starter	$18 77	$11.76	$19.63	$10 62	$13.95	$4.23
Sidedress	$9.80	$14.84	$12.13	$10.79	$9.75	$12.28
Lime	$9 04	$7.58	$10.53	$7.97	$8.17	$4.71
Herbicide	$18 67	$6.43	$19.65	$5.20	$25.31	$13.22
Insecticide	$6 15	$6 00	$8.00	$5.46	$6.08	$5.56
Machinery Operating	$25 70	$23.33	$20.48	$16.32	$13.42	$7.31
Grain Drying	$13 46	$24.05	$24.48	$31.50	$15.96	$14.19
Custom Hire	$1.19	$4.43	$9.43	$12.84	$21.00	$46.71
Paid Labor	$6 24	$10.16	$16.59	$33 96	$5.80	$6.83
Miscellaneous	$4 56	$9.91	$2.52	$4.38	$0 00	$0.00
Interest on Operating Captial	$6 37	$9.76	$8 05	$11.43	$6.36	$1.41
Total Variable Cost	$164 11	$57 62	$190 97	$62 26	$179 47	$42 92
Fixed Costs:						
Machinery Ownership	$39 71	$14.92	$40.10	$19.03	$20.09	$12.55
Total Specified Costs	$203 81	$59 90	$231 06	$67.84	$199.56	$38 15
Returns to Land and Mgt.	$153.53	$118.50	$156.53	$92.51	$191 91	$73.89
Breakeven price ($/bu.)	$1.53	$1.07	$1.46	$0.59	$1.16	$0.25
Breakeven Yield (bu./A)	90.0	23.6	101.1	29 4	89 1	16.4

Note: Land Charges have not been included in the calculations for Breakeven Price or Breakeven Yield.

Table 4. Grain Budget Summaries, by Yield Level, Five Acre Corn Club, 1992 Crop Year

	Top 25% (14 records)		High Middle 25% (14 records)		Low Middle 25% (14 records)		Bottom 25% (14 records)	
	Average	Standard Deviation	Average	Standard Deviation	Average	Standard Deviation	Average	Standard Deviation
Receipts								
Yield (bu.)	194 8	7.2	172.7	6.1	158.1	6.2	112.1	22.5
Price ($/bu.)	$2.24	$0.17	$2.35	$0.25	$2.19	$0.15	$2.27	$0 24
Deficiency Payment	$0.05	$0.14	$0.14	$0.25	$0.07	$0 19	$0.03	$0 13
Gross Returns	$445.83	$53.94	$430.62	$70.80	$358.20	$52.85	$260.41	$67 94
Variable Costs								
Seed	$26 80	$10.23	$25.00	$3.44	$23.22	$3 76	$20.44	$3.22
Fertilizer								
Preplant	$23.02	$21.45	$12.69	$18.22	$19 92	$15.06	$21 79	$39.00
Starter	$20 49	$12.03	$19.08	$8.50	$14.65	$10.13	$19.04	$11 74
Sidedress	$8 67	$12.21	$16.59	$14.47	$5 78	$9 77	$9 90	$13 92
Lime	$11.68	$7.05	$9 12	$9 78	$7 63	$5.30	$8.76	$6.87
Herbicide	$16.45	$8.86	$21.51	$7.27	$19.81	$5.94	$19.96	$7 69
Insecticide	$6 84	$5 92	$7.24	$5.20	$7 71	$5.60	$4.42	$4.24
Machinery Operating	$20 95	$11.42	$20.15	$19.84	$21.81	$29.36	$27.88	$15 68
Grain Drying	$21.26	26.24	$31.48	$34.51	$8 10	$14.05	$10.97	$22.34
Custom Hire	$4 36	$7.84	$4 66	$8.51	$15.46	$31.83	$0.21	$0 80
Paid Labor	$8 27	$16.64	$6 63	$8.25	$4.47	$6.33	$18.57	$37 99
Miscellaneous	$1 75	$4.24	$3 18	$5.28	$4 90	$11 78	$4 11	$8.27
Interest on Operating Capital	$8 61	$13.32	$8.70	$13 68	$5 45	$2.01	$4.58	$2.83
Total Variable Cost	$179 14	$51 76	$186.22	$69 11	$158.89	$44.49	$170 61	$68 41
Fixed Costs								
Machinery Ownership	$36.20	$28.51	$33 94	$11.21	$34.47	$23.48	$50.21	$13 17
Total Specified Costs	$215.34	$43.82	$220 16	$74 05	$193.36	$50 06	$220 82	$70 68
Returns to Land and Mgt	$230 49	$74 65	$210 46	$58 98	$164 84	$60 79	$39.58	$55 01
Breakeven Price ($/bu)	$1 11	$0.22	$1 27	$0 43	$1 22	$0.32	$2.19	$1.38
Breakeven Yield (bu./A)	96 9	23.5	93 0	27.5	88 4	22 7	96 7	27.3

Note: Land Charges have not been included in the calculations for Breakeven Price or Breakeven Yield.

Table 4 contains budget summaries for corn grain by yield level. Corn cost of production is broken down by four yield levels representing the top 25% of yields in 1991, the high middle 25%, the low middle 25%, and the bottom 25%. Total variable costs did not vary between yield levels as much in 1992 as they did in 1991. Machinery ownership costs were highest for the lowest yielding group and very similar for the other yield groups. As in 1991, the highest yielding group had the highest returns to land and management and the lowest breakeven price.

Table 5 contains budget summaries for corn grain by soil productivity group. Soils in Pennsylvania can be classified into five soil productivity groups. Group I soils are characterized as being well-drained and have a depth of greater than 40 inches. Group II soils can either be moderately well-drained soils with a soil depth of greater than 40 inches or well-drained soils with a soil depth of between 20 and 40 inches. Group III soils can be either moderately well-drained soils with a soil depth of 20 to 40 inches or well-drained soils with a soil depth of less than 20 inches. No budgets for Group IV or V soils were requested for 1992. Farmers producing corn on Group I soils had the highest yields on average in 1992 at 171.4 bu./A. Farmers growing corn on Group II soils reported the lowest average yield and a higher cost of production than farmers on Group I soils. The difference in returns to land and management between Group I and II soils was about $32 in 1992. The differences for Group III soils when compared to Groups I and II soils are very evident; total costs are higher and returns to land and management are substantially lower.

Table 5. Grain Budget Summaries, by Soil Productivity Group, Five Acre Corn Club, 1992 Crop Year

	Group I (23 records)		Group II (7 records)		Group III (11 records)	
	Average	Standard Deviation	Average	Standard Deviation	Average	Standard Deviation
Receipts						
Yield (bu.)	171.4	24.5	148.7	26.3	152.4	32.9
Price ($/bu.)	$2.27	$0.22	$2.28	$0 14	$2.32	$0.26
Deficiency Payment	$0 08	$0.21	$0.26	$0.25	$0.04	$0.14
Gross Returns	$404 49	$93 41	$383.30	$103.32	$356.53	$72.26
Variable Costs:						
Seed	$24.77	$8 67	$23.29	$2.51	$23.98	$9.06
Fertilizer						
Preplant	$19.71	$21.40	$10.91	$18.78	$9.06	$11.44
Starter	$16.64	$10.16	$16.44	$12.74	$18.84	$4.25
Sidedress	$10.77	$13.75	$9.98	$10.69	$13.14	$15.20
Lime	$7.79	$5.87	$12.71	$7.50	$10.77	$8.68
Herbicide	$20.78	$7.97	$20.26	$3.73	$16.34	$4.64
Insecticide	$5.76	$5.12	$10.46	$5.62	$6.35	$6.28
Machinery Operating	$23.50	$20.10	$19.72	$6.93	$17.95	$8.85
Grain Drying	$18.50	$25.32	$16.56	$25.39	$34.13	$35.10
Custom Hire	$10.75	$24.48	$2.41	$5.95	$4.23	$11.49
Paid Labor	$6.22	$13.42	$12.58	$7.58	$19.73	$43.26
Miscellaneous	$4.75	$9.66	$10.36	$10.48	$0.47	$1.57
Interest on Operating Captial	$5.24	$1.98	$5.94	$2.01	$14.47	$20.29
Total Variable Cost	$175.18	$58.37	$171.62	$51.88	$189.46	$62.06
Fixed Costs:						
Machinery Ownership	$30.02	$16.83	$43.97	$14.17	$45.94	$17.74
Total Specified Costs	$205.20	$53.40	$215.59	$51.98	$235.40	$70.04
Returns to Land and Mgt.	$199.29	$73.48	$167.72	$83.76	$121.13	$87.86
Breakeven Price ($/bu.)	$1.21	$0.31	$1.48	$0.38	$1.61	$0.58
Breakeven Yield (bu./A)	89.9	19.0	94.4	22.4	101.7	30 6

Note: Land Charges have not been included in the calculations for Breakeven Price or Breakeven Yield.

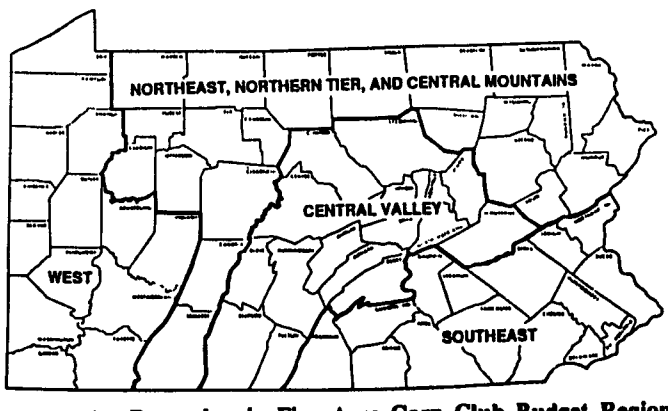

Figure 1. Pennsylvania Five Acre Corn Club Budget Regions