



Projected No-till 2007 Crop Budgets Southwest North Dakota

Ron Haugen, Farm Management Specialist

Andrew Swenson, Farm Management Specialist

Roger Ashley, Area Agronomist, Dickinson Research Extension Center

The 2007 no-till crop budgets provide an estimate of revenues and costs for selected crops. Each set of budgets is developed for a multicounty region. Each region has considerable variation in soil type and productivity, and weather conditions, as well as management and production practices. Therefore, **these budgets are intended to be used only as a guide. Individuals are highly encouraged to develop their own budgets!**

The profitability budget accounts for full economic opportunity costs for land and machinery investment, regardless of farm operator equity position. The bottom line is the return to labor and management. This is the expected “payment” to the producer for the labor and managerial efforts required by the crop enterprise. Each individual must decide whether it is sufficient.

The budget can be changed to conform to the more common definition of accounting profit (return to unpaid labor and management, and owner equity) by replacing the machinery investment and land charge cost items with your per-acre interest, or rental, expense of machinery and land, and real estate tax if land is owned, respectively.

The budget can be used for long-run decisions if the revenues and costs are realistic for several years. (Crop prices, direct costs and the land charge are best estimates for only the 2007 crop year, with crop yields assumed at break-even levels for 2007 prices, and machinery ownership costs as an average for the total length of ownership). If your budget shows

a high return to labor and management, and is representative for several years, increased acreage and corresponding investment should be considered. However, if long-run returns to labor and management are unsatisfactory, the best decision may be to exit the crop enterprise and employ the machinery and land investment, as well as labor and management, in a different enterprise or investment.

For short-run planning decisions, you can omit the indirect costs if the land and machinery required to produce the different enterprises are in place. Simply compare the crop enterprises by calculating return over direct costs. Labor requirements and risk also should be considered. Crop insurance is not available for some crops.

The budgets can be used to estimate cash flow by making a few modifications. Machinery depreciation should be omitted and the machinery investment number replaced with your per-acre principal and interest payment on machinery debt. For owned land, the land charge should be replaced with your per-acre real estate tax, and principal and interest payment on land debt.

Direct and counter-cyclical payments under the 2002 Farm Bill are omitted from the budgets because those payments are tied to historic farm program base acres and payment yields, not to current crop selection or production. Direct payments for this region are about \$6.25 per acre when averaged over all crop acreage. Counter-cyclical payments, which occur if the national average price of wheat, feed grains or soybeans is below a certain level, are not expected with the price levels used in the budgets.

The Natural Resources Conservation Service (NRCS) provides incentive payments to producers to implement no-till production systems through the EQIP program. Other government payments may be directed towards the adoption of no-till practices.

NDSU
Extension Service

North Dakota State University, Fargo, ND 58105

In 2005 the Chicago Climate Exchange (CCX) began trading carbon credits. This non-governmental greenhouse gas (GHG) registry which is a self-regulating body whose members make a voluntary but legally binding commitment to reduce GHG emissions recognizes the environmental benefits of no-till practices. Carbon credits are bought and sold at the exchange. North Dakota land managers who commit to continuous conservation tillage through 2010 on the acres specified upon project registration can earn extra income through the sale of carbon credits. Crops must be grown annually and the burning of crop residue is prohibited. No-till practices accepted by the CCX are those defined as no-till and strip-till in the Natural Resources Conservation Service National Handbook of Conservation Practices. Though the amount received from the sale of carbon credits in terms of dollars per acre is relatively small those practicing no-till can benefit financially from the adoption of the practice.

No-till Definition

Numerous definitions of no-till can be found in literature. As soil disturbance decreases benefits such as erosion control, moisture retention, increased organic matter and lower fuel and labor input costs will occur. Also in terms of participation in some farm programs and in carbon sequestration programs no-till definitions may be more stringent than those generally accepted by local communities. Budgets in this publication are estimated based on no-till practices as defined below:

No-till is the practice that leaves the soil and crop residue undisturbed except for the crop row where the seed and fertilizer is placed in the ground. No-till planters disturb less than 25% of the row width. This disturbance includes soil moved in the crop row plus soil dispersed or splashed. Weeds are controlled primarily with herbicides though cultural methods such as crop rotation, crop competition, and limited soil disturbance will effectively reduce the need for the use of herbicides compared to tilled, monoculture management programs. The National Soil Conservation Service soil tillage intensity rating (STIR) value for no-till is less than 10 over five continuous years. (modified from the NRCS Tillage Practice Guide, A Guide to USDA-NRCS Practice Standards 329 No Till/Strip Till/Direct Seed & Mulch Till)

Sequence of Operations

After weeds and volunteer crops emerge or resume growth, a herbicide (usually glyphosate) is applied to eliminate the "green bridge" and early competition from weeds. With specific crops such as sunflowers, flax and field peas, and where herbicide labels per-

mit, preplant residue herbicides are tank-mixed with glyphosate for the preplant burn-down for residual weed control.

Nitrogen fertilizer, usually in the form of urea, is broadcast. Sufficient rainfall prior to significant volatilization of fertilizer is required to move nitrogen into the soil. Some producers apply fertilizer with coulters or knives in a separate operation prior to seeding. Some drills have the capability to place seed and fertilizer in separate bands to avoid injury from fertilizer.

Postemergent application of crop protection chemicals are made as required. When wheat follows wheat, a foliar fungicide product is included with the herbicide to control diseases such as tan spot. When wheat follows nonhost crops, the foliar fungicide product is not included.

Harvest is done with a combine equipped with a straw spreader or straw chopper. Some producers use a stripper header rather than a conventional header for wheat and barley that leaves more residue intact and less crop residue going through the combine.

Rotational Acre Budgets

In research trials, no-till practices properly implemented will increase grain yields an average of 47 percent (22.2 bushels per acre) in southwestern North Dakota, when compared with conventionally tilled yields. Rotations are an integral part of no-till, and when the proper diversity in the rotation occurs, producers have increased yields by about 30 percent (9.6 bushels per acre) over continuous wheat. Source: Roger Ashley, Dickinson REC.

Producers who use no-till seeding practices must build a systems-approach to managing inputs for profitability. No-till systems with rotations having little diversity will fail in the long run. Crop rotations are the most effective way of reducing many pest populations. Soil environments created by some crops remain after their growth and improve the growth efficiency of following crops. This rotational effect is specific for some crop combinations and sequences. A positive relationship between these crops in a rotation can make some rotations more profitable than other rotations in the long run.

A specific rotation is not assumed in this publication; however, two rotation examples are given on pages 4 and 5. The inclusion of field peas in the rotation reduces the amount of fertilizer nitrogen applied and eliminates a foliar fungicide application for the control of tan spot for the following spring wheat crop. This reduces input costs and increases net return for the wheat crop, as well as for the entire rotation sequence.

Use net return per rotational acre to measure profitability of different crop rotations correctly. In a rotational acre analysis, net returns for each crop year in the rotation are summed and divided by the number of years in the rotation, thereby standardizing all rotations to an acre basis. Break-even yields were calculated based on the expected market price. Producers can estimate the net return by multiplying the expected market price by expected yield in each crop and subtracting the sum of costs. This is done for each crop, and a composite budget for the rotation can be derived by summing the costs and returns for the life of the rotation and dividing by the number of years in the rotation.

Comparison to Conventional Budgets

In comparing the profitability of a no-till budget to a conventional budget, one must keep in mind the return to labor and management. It is often difficult to distinguish between return to labor and return to management from an owner/operator point of view. Economists often assume a charge for owner labor and management, resulting in an economic profit or loss for the enterprise. A charge is not included for labor of management; the bottom line is return to labor and management. Typically less labor and machinery investment is needed for a no-till operation, as compared with a conventional operation. However, management time and costs typically would be higher in a no-till operation. Risk factors for each enterprise also are not considered.

Primary Assumptions

All crops are assumed to be planted on dryland continuously cropped ground.

Costs of moving crop to local market/storage are included.

Expected Market Price: Best estimates by NDSU Extension economists. The greater of projected market price or marketing loan rate is used.

Break-even yields at expected market price are calculated to cover all listed costs.

Fertilizer: Cost of fertilizer applied, based on soil test, to meet yield goal of 130 percent of market yield. Nitrogen fertilizer can be reduced if previous crop was soybeans, dry beans, field peas or lentils.

Soil test

Nitrogen - 52 lb
Phosphorus - 12 ppm
Potassium - 356 ppm

Fertilizer prices:

Nitrogen - .305/lb
Phosphorus - .255/lb
Potassium - .20/lb

Seed Prices:

Spring Wheat 6.90/bu
Durum 7.00/bu
Barley 5.50/bu
Corn grain RR 1.38/thous.kern.
Oil Sunflower .68/thou.kern.
Conf. Sunflower 1.18/thou.kern.
Flax 8.00/bu
Canola RR 3.30/lb
Oats 3.75/bu
Field Peas 6.40/bu
Millet .20/lb
Buckwheat .30/lb
Safflower .42/lb
Lentils .19/lb
Mustard .65/lb
Large Chickpeas .65/lb
Rye 4.00/bu
Winter Wheat 6.00/bu

Fuel prices:

Diesel 2.30/gal
Gasoline 2.35/gal

Lubrication charge: 15 percent of fuel cost

Crop Insurance: Coverage levels are 70 percent on all insurable crops. MPC1 estimates are used, except for RA-HPO on spring wheat and soybeans.

Miscellaneous: Soil testing, machinery rent and custom work.

Operating Interest: Direct costs charged 8.25 percent interest for six-month period.

Miscellaneous Overhead: Machinery housing and insurance at .5 percent and .85 percent, respectively, of average machinery investment. Also, liability insurance and license fees of trucks. In addition, \$1 per acre is assumed for general farm utilities, farm publications, meetings, dues, income tax preparation, legal fees, etc.

Land charge = average cash rent.

Machinery investment: 4.5 percent real interest rate, over the years of machine ownership, is charged on average machinery investment. The real, or inflation adjusted, rate is the commercial rate minus the inflation rate. Average machinery investment = (purchase price + disposal price)/2

Depreciation = (purchase price - disposal price)/years of ownership)

Example 1. CROP ROTATION

| | Year 1 | Year 2 | Year 3 | Year 4 | |
|-------------------------------------|---------------------------------|---------------------------------|-------------------------------|-------------------------------|--------------------------------------|
| Crop Composite | Spring Wheat 25% | Winter Wheat 25% | Grain Corn 25% | Field Peas 25% | Composite Budget 100% |
| Break-even Yield at | | | | | |
| Expected Market Price: | 29.2 bu | 38.0 bu | 51.2 bu | 31.6 bu | N/A |
| Expected Market Price | \$4.24 | \$3.63 | \$2.84 | \$3.96 | N/A |
| MARKET INCOME | 123.71 | 137.78 | 145.50 | 125.11 | 133.03 |
| DIRECT COSTS | | | | | |
| -Seed | 8.63 | 6.00 | 26.03 | 19.20 | 14.97 |
| -Herbicides | 14.25 | 7.65 | 8.75 | 20.70 | 12.84 |
| -Fungicides | 1.50 | 6.50 | 0.00 | 0.00 | 2.00 |
| -Insecticides | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| -Fertilizer | 21.50 | 34.02 | 17.71 | 0.00 | 18.31 |
| -Crop Insurance | 6.70 | 6.70 | 0.00 | 4.11 | 4.38 |
| -Fuel & Lubrication | 8.96 | 9.35 | 11.06 | 9.82 | 9.80 |
| -Repairs | 10.68 | 10.85 | 11.96 | 11.65 | 11.29 |
| -Drying | 0.00 | 0.00 | 8.51 | 0.00 | 2.13 |
| -Miscellaneous | 1.00 | 5.00 | 1.00 | 7.00 | 3.50 |
| -Operating Interest | 3.02 | 3.55 | 3.51 | 2.99 | 3.27 |
| | ===== | ===== | ===== | ===== | ===== |
| SUM OF LISTED DIRECT COSTS | 76.23 | 89.63 | 88.52 | 75.47 | 82.46 |
| INDIRECT (FIXED) COSTS | | | | | |
| -Misc. Overhead | 3.23 | 3.38 | 4.33 | 3.37 | 3.58 |
| -Machinery Depreciation | 11.75 | 12.10 | 17.15 | 13.14 | 13.54 |
| -Machinery Investment | 6.50 | 6.68 | 9.50 | 7.13 | 7.45 |
| -Land Investment | 26.00 | 26.00 | 26.00 | 26.00 | 26.00 |
| | ===== | ===== | ===== | ===== | ===== |
| SUM OF LISTED INDIRECT COSTS | 47.48 | 48.16 | 56.98 | 49.65 | 50.57 |
| SUM OF ALL LISTED COSTS | 123.71 | 137.78 | 145.50 | 125.11 | 133.03 |

Example 2. CROP ROTATION

| | Year 1 | Year 2 | Year 3 | |
|-------------------------------------|-----------------------------------|---------------------------------|---------------------------------|--------------------------------------|
| Crop Composite | Spring Wheat 33.3% | Grain Corn 33.3% | Field Peas 33.3% | Composite Budget 100% |
| Break-even Yield at | | | | |
| Expected Market Price: | 29.2 bu | 51.2 bu | 31.6 bu | N/A |
| Expected Market Price | \$4.24 | \$2.84 | \$3.96 | N/A |
| MARKET INCOME | 123.71 | 145.50 | 125.11 | 131.44 |
| DIRECT COSTS | | | | |
| -Seed | 8.63 | 26.03 | 19.20 | 17.95 |
| -Herbicides | 14.25 | 8.75 | 20.70 | 14.57 |
| -Fungicides | 1.50 | 0.00 | 0.00 | 0.50 |
| -Insecticides | 0.00 | 0.00 | 0.00 | 0.00 |
| -Fertilizer | 21.50 | 17.71 | 0.00 | 13.07 |
| -Crop Insurance | 6.70 | 0.00 | 4.11 | 3.60 |
| -Fuel & Lubrication | 8.96 | 11.06 | 9.82 | 9.95 |
| -Repairs | 10.68 | 11.96 | 11.65 | 11.43 |
| -Drying | 0.00 | 8.51 | 0.00 | 2.84 |
| -Miscellaneous | 1.00 | 1.00 | 7.00 | 3.00 |
| -Operating Interest | 3.02 | 3.51 | 2.99 | 3.17 |
| SUM OF LISTED DIRECT COSTS | 76.23 | 88.52 | 75.47 | 80.07 |
| INDIRECT (FIXED) COSTS | | | | |
| -Misc. Overhead | 3.23 | 4.33 | 3.37 | 3.64 |
| -Machinery Depreciation | 11.75 | 17.15 | 13.14 | 14.01 |
| -Machinery Investment | 6.50 | 9.50 | 7.13 | 7.71 |
| -Land Investment | 26.00 | 26.00 | 26.00 | 26.00 |
| SUM OF LISTED INDIRECT COSTS | 47.48 | 56.98 | 49.65 | 51.37 |
| SUM OF ALL LISTED COSTS | 123.71 | 145.50 | 125.11 | 131.44 |

No-till Spring Wheat

No-till Durum

| | Per Acre | Your Figures | Per Acre | Your Figures |
|---|---------------|-----------------|---------------|-----------------|
| Break-even Yield at | | | | |
| Expected Market Price (bu): | 29.2 | _____ | 26.8 | _____ |
| Expected Market Price: | \$ 4.24 | _____ | \$ 4.70 | _____ |
| MARKET INCOME | 123.71 | _____ | 125.87 | _____ |
| DIRECT COSTS | | | | |
| -Seed | 8.63 | _____ | 10.50 | _____ |
| -Herbicides | 14.25 | _____ | 14.25 | _____ |
| -Fungicides | 1.50* | _____ | 1.50* | _____ |
| -Insecticides | 0.00 | _____ | 0.00 | _____ |
| -Fertilizer | 21.50 | _____ | 21.50 | _____ |
| -Crop Insurance | 6.70 | _____ | 6.90 | _____ |
| -Fuel & Lubrication | 8.96 | _____ | 8.96 | _____ |
| -Repairs | 10.68 | _____ | 10.68 | _____ |
| -Drying | 0.00 | _____ | 0.00 | _____ |
| -Miscellaneous | 1.00 | _____ | 1.00 | _____ |
| -Operating Interest | 3.02 | _____ | 3.11 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED DIRECT COSTS | 76.23 | _____ | 78.39 | _____ |
| INDIRECT (FIXED) COSTS | | | | |
| -Misc. Overhead | 3.23 | _____ | 3.23 | _____ |
| -Machinery Depreciation | 11.75 | _____ | 11.75 | _____ |
| -Machinery Investment | 6.50 | _____ | 6.50 | _____ |
| -Land Charge | 26.00 | _____ | 26.00 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED INDIRECT COSTS | 47.48 | _____ | 47.48 | _____ |
| SUM OF ALL LISTED COSTS | 123.71 | _____ | 125.87 | _____ |
| RETURN TO LABOR & MANAGEMENT | — | _____ | — | _____ |

Spring Wheat and Durum notes:

*Early season foliar fungicide would cost about \$3-\$4 and late season fungicide would cost about \$7.00 plus application. Recent trials consistently show yield response of 5-10% with early season fungicide, if spring wheat or durum is planted into residue, and 15-20% with late application if weather favors disease development.

No-till Malting Barley

No-till Corn Grain

| | Per Acre | Your Figures | Per Acre | Your Figures |
|--|----------|-----------------|----------|-----------------|
| Break-even Yield at Expected Market Price (bu): | 34.7 | _____ | 51.2 | _____ |
| Expected Market Price: | \$ 3.28* | _____ | \$ 2.84 | _____ |
| MARKET INCOME | 113.90 | _____ | 145.50 | _____ |
| DIRECT COSTS | | | | |
| -Seed | 7.50 | _____ | 26.03* | _____ |
| -Herbicides | 13.75 | _____ | 8.75 | _____ |
| -Fungicides | 1.25 | _____ | 0.00 | _____ |
| -Insecticides | 0.00 | _____ | 0.00** | _____ |
| -Fertilizer | 15.63 | _____ | 17.71 | _____ |
| -Crop Insurance | 3.76 | _____ | 0.00*** | _____ |
| -Fuel & Lubrication | 9.41 | _____ | 11.06 | _____ |
| -Repairs | 10.81 | _____ | 11.96 | _____ |
| -Drying | 0.00 | _____ | 8.51 | _____ |
| -Miscellaneous | 1.00 | _____ | 1.00 | _____ |
| -Operating Interest | 2.60 | _____ | 3.51 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED DIRECT COSTS | 65.72 | _____ | 88.52 | _____ |
| INDIRECT (FIXED) COSTS | | | | |
| -Misc. Overhead | 3.40 | _____ | 4.33 | _____ |
| -Machinery Depreciation | 12.07 | _____ | 17.15 | _____ |
| -Machinery Investment | 6.71 | _____ | 9.50 | _____ |
| -Land Charge | 26.00 | _____ | 26.00 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED INDIRECT COSTS | 48.18 | _____ | 56.98 | _____ |
| SUM OF ALL LISTED COSTS | 113.90 | _____ | 145.50 | _____ |
| RETURN TO LABOR & MANAGEMENT | — | _____ | — | _____ |

Barley notes:

*Use \$2.31 estimate for feed barley price. Break-even yield for feed barley would be 49.3 bu.

Corn notes:

*Glyphosate resistant corn.

**Insecticide for wireworm, rootworm, cutworm and white grub would cost \$15-\$16 for granular applied or about \$5 per acre for seed treatment (only suppression for cutworm). Corn borer insecticide, foliar applied mid-season, would cost about \$6 plus application.

***Crop insurance only available by written agreement.

No-till Oil Sunflowers

No-till Confectionery Sunflowers

| | Per Acre | Your Figures | Per Acre | Your Figures |
|---|---------------|-----------------|---------------|-----------------|
| Break-even Yield at | | | | |
| Expected Market Price (lb): | 1,049.6 | _____ | 900.8 | _____ |
| Expected Market Price: | \$ 0.139 | _____ | \$ 0.190 | _____ |
| MARKET INCOME | 145.90 | _____ | 171.15 | _____ |
| DIRECT COSTS | | | | |
| -Seed | 15.98 | _____ | 24.78 | _____ |
| -Herbicides | 21.05 | _____ | 21.05 | _____ |
| -Fungicides | 0.00 | _____ | 0.00 | _____ |
| -Insecticides | 11.00 | _____ | 17.00 | _____ |
| -Fertilizer | 10.85 | _____ | 10.20 | _____ |
| -Crop Insurance | 7.59 | _____ | 11.57 | _____ |
| -Fuel & Lubrication | 8.26 | _____ | 8.50 | _____ |
| -Repairs | 9.33 | _____ | 9.77 | _____ |
| -Drying | 2.46 | _____ | 2.40 | _____ |
| -Miscellaneous | 5.75 | _____ | 10.50 | _____ |
| -Operating Interest | 3.81 | _____ | 4.78 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED DIRECT COSTS | 96.07 | _____ | 120.55 | _____ |
| INDIRECT (FIXED) COSTS | | | | |
| -Misc. Overhead | 3.56 | _____ | 3.64 | _____ |
| -Machinery Depreciation | 12.80 | _____ | 13.18 | _____ |
| -Machinery Investment | 7.47 | _____ | 7.78 | _____ |
| -Land Charge | 26.00 | _____ | 26.00 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED INDIRECT COSTS | 49.83 | _____ | 50.60 | _____ |
| SUM OF ALL LISTED COSTS | 145.90 | _____ | 171.15 | _____ |
| RETURN TO LABOR & MANAGEMENT | — | _____ | — | _____ |

Notes:

No-till Canola

No-till Flax

| | Per Acre | Your Figures | Per Acre | Your Figures |
|--|----------|-----------------|------------|-----------------|
| Break-even Yield at Expected Market Price (lb): | 1,134.5 | _____ | (bu): 21.0 | _____ |
| Expected Market Price: | \$ 0.135 | _____ | \$ 5.73 | _____ |
| MARKET INCOME | 153.16 | _____ | 120.48 | _____ |
| DIRECT COSTS | | | | |
| -Seed | 18.15* | _____ | 4.80 | _____ |
| -Herbicides | 20.05** | _____ | 17.15 | _____ |
| -Fungicides | 0.00 | _____ | 0.00 | _____ |
| -Insecticides | 7.00 | _____ | 0.00* | _____ |
| -Fertilizer | 24.48*** | _____ | 18.89 | _____ |
| -Crop Insurance | 8.90 | _____ | 5.90 | _____ |
| -Fuel & Lubrication | 9.50 | _____ | 9.66 | _____ |
| -Repairs | 11.19 | _____ | 11.25 | _____ |
| -Drying | 0.00 | _____ | 0.00 | _____ |
| -Miscellaneous | 1.00 | _____ | 1.00 | _____ |
| -Operating Interest | 4.14 | _____ | 2.59 | _____ |
| SUM OF LISTED DIRECT COSTS | 104.40 | _____ | 71.48 | _____ |
| INDIRECT (FIXED) COSTS | | | | |
| -Misc. Overhead | 3.32 | _____ | 3.38 | _____ |
| -Machinery Depreciation | 12.32 | _____ | 12.44 | _____ |
| -Machinery Investment | 7.11 | _____ | 7.18 | _____ |
| -Land Charge | 26.00 | _____ | 26.00 | _____ |
| SUM OF LISTED INDIRECT COSTS | 48.75 | _____ | 49.00 | _____ |
| SUM OF ALL LISTED COSTS | 153.16 | _____ | 120.48 | _____ |
| RETURN TO LABOR & MANAGEMENT | — | _____ | — | _____ |

Canola notes:

*Glyphosate resistant canola.

**Includes technology fee.

***Fertilizer cost includes 20 lbs sulfur at \$.265/lb.

Flax notes:

*Insecticide for late season grasshopper outbreaks would cost about \$8 per acre plus application.

No-till Field Peas

No-till Oats

| | Per Acre | Your Figures | Per Acre | Your Figures |
|--|----------|-----------------|----------|-----------------|
| Break-even Yield at Expected Market Price (bu): | 31.6 | _____ | 62.0 | _____ |
| Expected Market Price: | \$ 3.96* | _____ | \$ 1.78 | _____ |
| MARKET INCOME | 125.11 | _____ | 110.44 | _____ |
| DIRECT COSTS | | | | |
| -Seed | 19.20 | _____ | 7.50 | _____ |
| -Herbicides | 20.70 | _____ | 5.85 | _____ |
| -Fungicides | 0.00 | _____ | 0.00 | _____ |
| -Insecticides | 0.00 | _____ | 0.00 | _____ |
| -Fertilizer | 0.00 | _____ | 14.70 | _____ |
| -Crop Insurance | 4.11 | _____ | 6.22 | _____ |
| -Fuel & Lubrication | 9.82 | _____ | 10.58 | _____ |
| -Repairs | 11.65 | _____ | 11.64 | _____ |
| -Drying | 0.00 | _____ | 0.00 | _____ |
| -Miscellaneous | 7.00 | _____ | 1.00 | _____ |
| -Operating Interest | 2.99 | _____ | 2.37 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED DIRECT COSTS | 75.47 | _____ | 59.85 | _____ |
| INDIRECT (FIXED) COSTS | | | | |
| -Misc. Overhead | 3.37 | _____ | 3.72 | _____ |
| -Machinery Depreciation | 13.14 | _____ | 13.27 | _____ |
| -Machinery Investment | 7.13 | _____ | 7.59 | _____ |
| -Land Charge | 26.00 | _____ | 26.00 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED INDIRECT COSTS | 49.65 | _____ | 50.58 | _____ |
| SUM OF ALL LISTED COSTS | 125.11 | _____ | 110.44 | _____ |
| RETURN TO LABOR & MANAGEMENT | — | _____ | — | _____ |

Field Pea notes:

*Food quality price. Use loan rate of about \$3.60 per bushel to project revenue from feed quality peas. The loan deficiency payment is calculated from the price of feed quality peas.

No-till Lentils

No-till Yellow Mustard

| | Per Acre | Your Figures | Per Acre | Your Figures |
|----------------------------------|------------|-----------------|------------|-----------------|
| Break-even Yield at | | | | |
| Expected Market Price (lb): | 1,003.3 | _____ | 625.8 | _____ |
| Expected Market Price: | \$ 0.115 | _____ | \$ 0.164 | _____ |
| MARKET INCOME | 115.38 | _____ | 102.63 | _____ |
| DIRECT COSTS | | | | |
| -Seed | 13.30 | _____ | 6.50 | _____ |
| -Herbicides | 18.75 | _____ | 11.25 | _____ |
| -Fungicides | 0.00 | _____ | 0.00 | _____ |
| -Insecticides | 0.00 | _____ | 0.00 | _____ |
| -Fertilizer | 0.00 | _____ | 8.75 | _____ |
| -Crop Insurance | 8.47 | _____ | 4.33 | _____ |
| -Fuel & Lubrication | 9.54 | _____ | 9.26 | _____ |
| -Repairs | 11.53 | _____ | 11.08 | _____ |
| -Drying | 0.00 | _____ | 0.00 | _____ |
| -Miscellaneous | 2.00 | _____ | 1.00 | _____ |
| -Operating Interest | 2.62 | _____ | 2.15 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED DIRECT COSTS | 66.21 | _____ | 54.32 | _____ |
| INDIRECT (FIXED) COSTS | | | | |
| -Misc. Overhead | 3.27 | _____ | 3.22 | _____ |
| -Machinery Depreciation | 12.89 | _____ | 12.08 | _____ |
| -Machinery Investment | 7.00 | _____ | 7.00 | _____ |
| -Land Charge | 26.00 | _____ | 26.00 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED INDIRECT COSTS | 49.17 | _____ | 48.31 | _____ |
| SUM OF ALL LISTED COSTS | 115.38 | _____ | 102.63 | _____ |
| RETURN TO LABOR & MANAGEMENT | — | _____ | — | _____ |

notes:

No-til Safflower

No-till Buckwheat

| | Per Acre | Your Figures | Per Acre | Your Figures |
|--|---------------|-----------------|---------------|-----------------|
| Break-even Yield at Expected Market Price (lb): | 681.8 | _____ | 705.6 | _____ |
| Expected Market Price: | \$ 0.150 | _____ | \$ 0.144 | _____ |
| MARKET INCOME | 102.27 | _____ | 101.60 | _____ |
| DIRECT COSTS | | | | |
| -Seed | 10.50 | _____ | 15.00 | _____ |
| -Herbicides | 12.55 | _____ | 12.55 | _____ |
| -Fungicides | 0.10 | _____ | 0.00 | _____ |
| -Insecticides | 0.00 | _____ | 0.00 | _____ |
| -Fertilizer | 3.95 | _____ | 1.90 | _____ |
| -Crop Insurance | 6.02 | _____ | 0.00 | _____ |
| -Fuel & Lubrication | 8.59 | _____ | 9.38 | _____ |
| -Repairs | 10.52 | _____ | 11.13 | _____ |
| -Drying | 0.00 | _____ | 0.00 | _____ |
| -Miscellaneous | 1.00 | _____ | 1.00 | _____ |
| -Operating Interest | 2.20 | _____ | 2.10 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED DIRECT COSTS | 55.43 | _____ | 53.07 | _____ |
| INDIRECT (FIXED) COSTS | | | | |
| -Misc. Overhead | 3.09 | _____ | 3.27 | _____ |
| -Machinery Depreciation | 11.41 | _____ | 12.20 | _____ |
| -Machinery Investment | 6.34 | _____ | 7.06 | _____ |
| -Land Charge | 26.00 | _____ | 26.00 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED INDIRECT COSTS | 46.84 | _____ | 48.53 | _____ |
| SUM OF ALL LISTED COSTS | 102.27 | _____ | 101.60 | _____ |
| RETURN TO LABOR & MANAGEMENT | — | _____ | — | _____ |

notes:

No-till Millet

No-till Large Chickpeas

| | Per Acre | Your Figures | Per Acre | Your Figures |
|--|--------------|-----------------|---------------|-----------------|
| Break-even Yield at Expected Market Price (lb): | 1,159.3 | _____ | 895.7 | _____ |
| Expected Market Price: | \$ 0.075 | _____ | \$ 0.265 | _____ |
| MARKET INCOME | 86.95 | _____ | 237.34 | _____ |
| DIRECT COSTS | | | | |
| -Seed | 5.00 | _____ | 78.00 | _____ |
| -Herbicides | 4.05 | _____ | 18.75 | _____ |
| -Fungicides | 0.00 | _____ | 49.00* | _____ |
| -Insecticides | 0.00 | _____ | 0.00 | _____ |
| -Fertilizer | 5.38 | _____ | 2.30 | _____ |
| -Crop Insurance | 0.00 | _____ | 7.93 | _____ |
| -Fuel & Lubrication | 9.69 | _____ | 9.91 | _____ |
| -Repairs | 11.27 | _____ | 10.55 | _____ |
| -Drying | 0.00 | _____ | 0.00 | _____ |
| -Miscellaneous | 1.00 | _____ | 4.00 | _____ |
| -Operating Interest | 1.50 | _____ | 7.44 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED DIRECT COSTS | 37.89 | _____ | 187.89 | _____ |
| INDIRECT (FIXED) COSTS | | | | |
| -Misc. Overhead | 3.39 | _____ | 3.30 | _____ |
| -Machinery Depreciation | 12.47 | _____ | 12.99 | _____ |
| -Machinery Investment | 7.20 | _____ | 7.17 | _____ |
| -Land Charge | 26.00 | _____ | 26.00 | _____ |
| | ===== | ===== | ===== | ===== |
| SUM OF LISTED INDIRECT COSTS | 49.06 | _____ | 49.46 | _____ |
| SUM OF ALL LISTED COSTS | 86.95 | _____ | 237.34 | _____ |
| RETURN TO LABOR & MANAGEMENT | — | _____ | — | _____ |

Large Chickpea notes:

*Three treatments of fungicide for ascochyta blight. More treatment may be necessary. Two different chemistries should be used for fungicide resistance management.

No-till Winter Wheat

No-till Rye

| | Per Acre | Your Figures | Per Acre | Your Figures |
|---|---------------|-----------------|---------------|-----------------|
| Break-even Yield at | | | | |
| Expected Market Price (bu): | 38.0 | | 42.8 | |
| Expected Market Price: | \$ 3.63 | | \$ 2.44 | |
| MARKET INCOME | 137.78 | | 104.35 | |
| DIRECT COSTS | | | | |
| -Seed | 6.00 | | 4.80 | |
| -Herbicides | 7.65 | | 2.55 | |
| -Fungicides | 6.50 | | 0.00 | |
| -Insecticides | 0.00 | | 0.00 | |
| -Fertilizer | 34.02 | | 23.01 | |
| -Crop Insurance | 6.70 | | 5.00 | |
| -Fuel & Lubrication | 9.35 | | 8.73 | |
| -Repairs | 10.85 | | 10.24 | |
| -Drying | 0.00 | | 0.00 | |
| -Miscellaneous | 5.00 | | 1.00 | |
| -Operating Interest | 3.55 | | 2.28 | |
| SUM OF LISTED DIRECT COSTS | 89.63 | | 57.62 | |
| INDIRECT (FIXED) COSTS | | | | |
| -Misc. Overhead | 3.38 | | 3.15 | |
| -Machinery Depreciation | 12.10 | | 11.38 | |
| -Machinery Investment | 6.68 | | 6.20 | |
| -Land Charge | 26.00 | | 26.00 | |
| SUM OF LISTED INDIRECT COSTS | 48.16 | | 46.73 | |
| SUM OF ALL LISTED COSTS | 137.78 | | 104.35 | |
| RETURN TO LABOR & MANAGEMENT | — | | — | |

notes:

2007 No-till Machinery List

| Machine | Purch. Price | Annual Use | Years to trade | Trade in | Deprec. | Invest. | Repairs | Ac/hr |
|-------------------------------|--------------|------------|----------------|----------|----------|----------|----------|-------|
| 2WD 100HP Tractor | 53400 | 400 hr | 20 | 17239 | 4.52/hr | 3.97/hr | 5.44/hr | |
| 2WD 160HP Tractor | 88000 | 500 hr | 15 | 26044 | 8.26/hr | 5.13/hr | 8.96/hr | |
| 4WD 280HP Tractor | 121100 | 500 hr | 15 | 35832 | 11.37/hr | 7.06/hr | 7.05/hr | |
| SP Combine (base unit) | 150200 | 250 hr | 12 | 37351 | 37.62/hr | 16.88/hr | 24.38/hr | |
| Tandem Truck (used) | 30800 | 150 hr | 15 | 10200 | 9.16/hr | 6.15/hr | 5.50/hr | |
| Semi & Trailer (used) | 35900 | 150 hr | 10 | 10200 | 17.13/hr | 6.92/hr | 6.87/hr | |
| Pick-up Truck | 19700 | 300 hr | 10 | 4100 | 5.20/hr | 1.79/hr | 2.58/hr | |
| Swather 25 ft | 16900 | 1000 ac | 20 | 3989 | 0.65/ac | 0.47/ac | 0.29/ac | 12.1 |
| Sprayer 90 ft | 25900 | 5000 ac | 10 | 12852 | 0.26/ac | 0.18/ac | 0.33/ac | 42.5 |
| No-till Drill w/fert. 30 ft | 110200 | 1800 ac | 12 | 51968 | 2.70/ac | 2.03/ac | 5.09/ac | 12.7 |
| No-till Planter w/fert. 30 ft | 60100 | 800 ac | 20 | 20039 | 2.50/ac | 2.25/ac | 3.33/ac | 10.6 |
| Corn head 6-30 | 24700 | 400 ac | 20 | 2325 | 2.78/ac | 1.52/ac | 0.76/ac | 5.1 |
| Grain head w/pu | 10800 | 800 ac | 15 | 2193 | 0.71/ac | 0.37/ac | 0.20/ac | 8.5 |
| Grain str. cut 25 ft | 14600 | 1200 ac | 10 | 4876 | 0.80/ac | 0.37/ac | 0.27/ac | 8.5 |
| Head w/sunf pans 25 ft | 18200 | 400 ac | 20 | 1867 | 2.04/ac | 1.13/ac | 0.34/ac | 8.5 |
| Grain auger | 6500 | 50 hr | 20 | 500 | 6.00/hr | 3.15/hr | 0.66/hr | |

Example Sequence of Operations

Field operations sequence for spring wheat and durum

| OP. NO. | DESCRIPTION | (FEET) WIDTH | (MPH) SPEED | (AC/HR) Fld Cap | (\$/AC) FUEL & LUBE | (\$/AC) EST. REPAIRS |
|---------|--------------------------|--------------|-------------|-----------------|---------------------|----------------------|
| 1 | Spray (burn-down) | 90 | 6.0 | 42.5 | 0.27 | 0.46 |
| 2 | Plant | 30 | 5.0 | 12.7 | 2.56 | 5.65 |
| 3 | Spray (postemergence) | 90 | 6.0 | 42.5 | 0.27 | 0.46 |
| 4 | Combine str. cut | 25 | 4.0 | 8.5 | 3.16 | 3.14 |
| | Trucks* | | | | 1.18 | 0.50 |
| | Grain auger (pto) | | | | 0.16 | 0.01 |
| | Pick-up truck allocation | | | | 1.36 | 0.47 |
| Total | | | | | 8.96 | 10.68 |

* Truck costs will vary among crops.

The NDSU Extension Service does not endorse commercial products or companies even though reference may be made to tradenames, trademarks or service names.

This publication may be copied for noncommercial, educational purposes in its entirety with no changes. Requests to use any portion of the document (including text, graphics or photos) should be sent to permission@ndsuext.nodak.edu. Include exactly what is requested for use and how it will be used.

For more information on this and other topics, see: www.ag.ndsu.edu

County commissions, North Dakota State University and U.S. Department of Agriculture cooperating. Duane Hauck, director, Fargo, N.D. Distributed in furtherance of the acts of Congress of May 8 and June 30, 1914. We offer our programs and facilities to all people regardless of race, color, national origin, religion, gender, disability, age, veteran's status or sexual orientation; and are an equal opportunity institution. This publication will be made available in alternative formats for people with disabilities upon request, (701) 231-7881.

150-3-07