NEBRASKA POTATO EYES

Technical News Reports for the Nebraska Potato Industry

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We're getting close to the next "Nebraska Potato Focus" which will run the afternoon of Wednesday, December 16 and the morning of Thursday, December 17. The main topic will be insects. Confirmed speakers will be Whitney Cranshaw (Colorado State Univ.), Edward Radcliffe (Univ. of Minnesota), Mark Whalon (Michigan State Univ.), Robert Wright (Univ. of Nebraska-SCREC), Gary Hein (Univ. of Nebraska-PHREC), Jake Jacobson (EPA-Lincoln), Gary Leever (Potato Certification Assn. of Nebr.), and myself. A representative from HybriTech/Monsanto will present information on transgenic potatoes especially on the development of Colorado Potato Beetle - resistance. Mr. Gordon Howard of Oregon Trails Wagon Train in Bayard will give a look at the conventional practices of growing potatoes circa 1900 using horse-drawn equipment. The banquet will be held on Wednesday night at the Oregon Trail's Prime Rib (Bayard) where Gordon will also talk about the history of the Oregon Trail in the Panhandle. This is shaping up to be a great conference, if I do say so myself. The registration form will be in the mail soon. See you there!

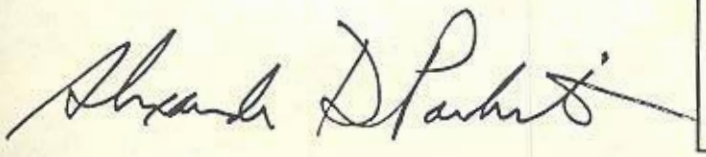
When do you use Gypsum? When do you use Ironsul?

See Page 2.

The lead article in this issue is on amending salt-affected ground by John Taberna of Western Lab. (ID). This is particularly important for the calciferous ground in our region. See page 2. Robert Johanson (NDSU) released 'Goldrush" (ND1538-1Run) and is highlighted in CULTIVARS; see page 6. The Western Potato Variety Trials are summarized on page 5.

Is Generation 4 seed in Colorado the same as Generation 4 in Nebraska?

See Page 7.



Pest Alert

Black dot has recently been identified on 'Norchip" tubers harvested in Wyoming. Refer to NebGuide G92-1090 — "Black Dot Disease of Potato" and articles in NPE vol 1, issues 2 and 4.

Rhizomania has been identified in a few sugarbeet fields in Scotts Bluff County. This is a virus carried by a fungus which is commonly found in the soil. Although it doesn't affect potatoes, several states, Minnesota, North Dakota and California for example, are considering drafting legislation to prevent the import of seed potatoes from rhizomania-infected areas. In Nebraska, this means right now only Scotts Bluff County.

Does this include potatoes stored in the county? Does this include equipment in or passing through the county? As more information develops, it will be reported here.

In This Issue...

Farming Salt-Affected Ground

John Taberna
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Soils have two properties that are mostly affected by salts: physical and chemical. Both of these have distinct characteristics. The two physical problems affecting soil structure are crusting and cementing.

Crusting is where the soil surface is dispersed by water from rain or irrigation. Upon drying, the surface forms a hard crust. Since most young seedlings do not have the energy to break through the crust, they die. Crusting is a surface problem, and it is only the surface that needs treatment. Any soil amendment should be applied at planting or thereafter. Table 1 lists recommended amendments for crusting.

Table 1. Guideline for Crusting

% Lime in soil	Calcium ppm	Sodium ppm	Recommendation (Western Lab.)
0.5 or greater	<4000 <4000 >4000 >4000	<230 >230 >230 <230	Sulfur, Ironsul, Sulfuric Acid, or Phosphoric Acid
none (0)	>1500 >1500 <1500 <1500	<230 >230 <230 >230	Ironsul Ironsul Gypsum Gypsum

When used, the following products should be applied in a 3 to 4 inch band directly on the surface soil over seedpieces for crusting problems.

—Elemental sulfur takes up to three years to oxidize to sulfuric acid. It may not be at concentrations high enough in the soil crust to be effective. Therefore, elemental sulfur is not a good crusting treatment product. (Rate = 100 to 200 lbs/acre).

—Gypsum is an excellent product for treating crusting soils. Gypsum is generally applied at the wrong time, and that is a problem. Gypsum should be used only when there is no lime and the calcium levels are below 1500 ppm-Ca. (Rate = 400 to 600 lbs/acre).

—Ironsul is effective on soils with lime, without lime, with calcium <4000 ppm, with calcium >4000 ppm, with sodium <230 and with sodium >230. It is the ideal treatment for crusting. (Rate = 150 to 200 lbs/acre).

—Sulfuric acid and phosphoric acid are excellent products for treating crusting. For them to work, the soil must contain lime. (Rate = 60 lbs actual/acre).

—Acid residue fertilizers are poor products for treating a crust problem on salt-affected ground. Their role in alkaline soils is to aid in the prevention of cementation of salt-affected ground.

—Manure and green manure crops, if left close to the surface, will aid in the physical separation of silts and clays, preventing them from plating and causing a crust. (Rates = 2 inch thick manure/acre; disc green manure prior to planting).

—Deep plowing can benefit the surface soil structure if a sandy material is turned up and mixed with the platy surface soil. This will reduce the surface crusting potential of soils high in silts and clays.

—Other practices to be considered are: 1. fall irrigation of ground, 2. irrigation prior to planting and 3. warming of soils at 4 inch depth.

Cementing in salt-affected soils is:

$CaCO_3$ (lime) soil + water = cement

Unlike crusting, cementing is both a chemical and a physical problem. The chemical problem is lime reacting with soil and water to form a "brick yard". This cemented soil will not dissolve or disperse in the presence of water. It must be treated physically, such as sub-soiling, or chemically, such as elemental sulfur, or a combination of amending procedures. Table 2 lists recommended amendments for cementing.

Table 2. Guidelines for Cementing

% Lime in soil	Calcium ppm	Sodium ppm	Recommendation (Western Lab.)
0.5 or greater	<4500 <4500 >4500 >4500	<230 >230 <230 >230	Sulfur or Ironsul Sulfur Sulfur Sulfur (Elem.)
none (o)	<4500 <4500 >4500 >4500	<230 >230 <230 >230	Gypsum or Ironsul Gypsum or Ironsul Ironsul Ironsul

Three points to consider before selecting the proper amendment are: 1. is lime present, 2. is calcium greater or lesser than 4500, and 3. is sodium greater or lesser than 230. Cementing is a problem that affects the top foot of the soil.

Calcium at 4500 ppm becomes a salt problem. Calcium accumulates in soil in three ways: 1. mineralization of the soil, 2. irrigation water, and 3. calcium products applied to soil.

—Calcium in a carbonate form is insoluble in water. Carbonic acid (H_2CO_3) is formed by the reaction of carbon dioxide (CO_2) and water (H_20). This develops due to respiration in plant roots and due to decomposition of organic matter. Calcium in the presence of carbonic acid forms lime.

$Ca + H_2CO_3 = CaCO_3$ (lime).

Continued on Page 3

Farming Salt-Affected Ground Continued From Page 2

—Calcium in a sulfate form is soluble in water; however, calcium sulfate (gypsum) can precipitate at high rates. Gypsum ($CaSO_4$) is used by many to treat a lime ($CaCO_3$) problem in soil. In other words, calcium is added to treat a high-calcium problem. This is asking for trouble!! Lime or calciferous soils need to be treated with sulfur to form gypsum from the calcium already present in the soil. In other words, taking calcium out by solubilizing it in a sulfate form.

—Elemental sulfur (S) is converted to sulfuric acid (H_2SO_4) by Thiobacillus bacteria in warm, wet soil. Sulfuric acid reacts with the free lime ($CaCO_3$) which is insoluble in water. The reaction between sulfuric acid and lime to form gypsum takes minutes.

S + Thiobacillus + warm and wet soil = H_2SO_4 (sulfuric acid)

H_2SO_4 + $CaCO_3$ (lime) = $CaSO_4$ (gypsum).

Lime is insoluble in water.

Gypsum is soluble in water.

—Besides sulfuric acid, phosphoric acid can be used on lime-containing soils. Phosphoric acid (H_2PO_4) plus lime ($CaCO_3$) gives calcium phosphate (CaH_2PO_4).

—Ironsul can be used in soils with or without lime, but it does work better in the presence of lime. It is an expensive product and should be included in a multiple-product approach.

$FeSO_4$ (Ironsul) x H_2SO_4 (free sulfuric acid) + $CaCO_3$ (lime) gives $FeSO_4$ (iron sulfate) + $CaSO_4$ (gypsum).

—Acid-residue fertilizers assist in preventing cementation. In themselves, they do not resolve the cementing problem.

Table 3. Sulfur-containing soil amendments with the amount needed to give one (1) pound of sulfur (S).

Amendment	Pounds Needed for One Pound of Sulfur
Elemental Sulfur, 99% S	1.00
Degradable Sulfur, 90% S	1.10
Sulfuric Acid, 98% H_2SO_4	3.06
Lime-Sulfuric Solution, 24% S	4.17
Gypsum, 18.6% S, $CaSO_4 \times 2H_2O$	5.38
Ammonium Sulfate, 24% S. $(NH_4)SO_4$	4.12
Magnesium Sulfate, $MgSO_4$	3.14
Potassium Sulfate, K_2SO_4	5.44
Epsom Salts, $MgSO_4 \times 7H_2O$	7.86
Ferric Sulfate, $Fe_2(SO_4)_3$	4.16
Ferrous Sulfate, $FeSO_4$	4.74
Ferrous Sulfate, $FeSO_4 \times H_2O$	5.30
Ferrous Sulfate, $FeSO_4 \times 7H_2O$	8.69
Aluminum Sulfate, $A1_2(SO_4)_3 \times 18H_2O$	6.94
Ammonium Polysulfide, 45% S, $(NH_4)_2$ Sx	2.22
Ammonium Thiosulfate, 26% S, $(NH_4)_2S_2O_3 + H_2O$	3.85
Calcium Polysulfide, 24% S CaSx + H_2O	4.17
Sulfur Dioxide, 50% S SO_2	2.00

Common Question: "Since elemental sulfur is too slow, Ironsul is so expensive and sulfuric acid is very dangerous, what is the maximum percent lime and concentration of calcium for a soil test which would still allow the use of gypsum??"

Answer:

Percent lime needs to be less than 1.5% and calcium needs to be less than 3,500 ppm (or 12,600 pounds per acre-foot).

Pesticide Sales

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U.S. pesticide sales on fruits and vegetables were about $800 million in 1991 (Table 1). This is nearly equal to that on soybeans. And, it amounts to 14% of total pesticide sales. Total U.S. sales in 1991 were $5.6 billion (Table 2), up 7% from 1990. The actual amount sold dropped slightly based on a survey conducted by the National Agricultural Chemicals Association. Most of the decrease in the amounts used has been attributed to better application methods and not due to "integrated-pest-management" or "biotechnology".

The produce industry dominates fungicide use (Table 2). Agricultural sales of fungicide were $350 million, and potatoes account for $200 million of that. The potato industry was the biggest user of pesticide among produce. Potatoes accounted for $117 million or 2% of the pesticide sales.

Table 1. Pesticide Sales on Selected Crops, 1991

Crop	Sales	% total sales
Produce (all)	$780 million	14
Cotton	$600 million	11
Soybean	$800 million	11
Corn (field)	$1.3 billion	23

Table 2. Pesticide Sales by Type, 1991

Type	$ Billion
Herbicides	3.60
Insecticides	1.31
Fungicides	0.43
(agricultural user =	0.35)
(potatoes =	0.20)
Other	0.26
Total	5.60

Western Regional Potato Variety Trials

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The 1991 Western Regional Potato Variety Trial was conducted in 12 locations — CA (2), CO, ID (2), NM (2), OR (3), TX, and WA. There were 20 entries. The protocol for the locations are available in Pavek, Corsini et al. National Potato Germplasm Evaluation and Enhancement Report, 1991.

After three trial years, two dual-purpose russets, AC7869-17 and A082611-7, continued to show promise and will be increased. Two fresh-market russets, A74212-1L and AC81198-11, will also be increased.

Disease resistant reactions are noted in Table 1. A81473-2 was resistant to early dying and foliar early blight. A82705-1R was resistant to foliar early blight. Eleven entries were resistant to scab and 9 to leaf roll-net necrosis.

US #1 yields greater than 350 cwt/a were obtained at full-season harvests from Lemhi Russet, R. Burbank, A74212R-1L, AO82283-1, AO82611-7, AO83037-10, ATX6-84378-1 RU, and CO083008-1. Early harvest yields of US #1 above 300 cwt/a were obtained from AC7869-17, ATX6-84378-1RU, CO083008-1, and Red LaSoda (Table 2)

The highest specific gravity (1.085 or greater) of late harvest were obtained from Lemhi R. AO82283-1, AO82611-7, and CO083008-1 (Table 3).

The highest merit ratings for tablestock usage were for CO083008-1 (3.9), AO83037-10 (3.8), Red LaSoda (3.7), A74212-1L (3.6), and A82119-3 (3.6) (Table 3). For processing, the highest ratings were for CO083008-1 (4.7), AO82611-7 (4.3), Lemhi R. (4.0), A81473-2 (4.0), A82119-3 (4.0), and AO83037-10 (4.0).

Table 1. Entry Characteristics

Entry	Skin Type	Tuber Shape	Vine Maturity	Disease Resistance	Entry	Skin Type	Tuber Shape	Vine Maturity	Disease Resistance
Lemhi R.	Russet	long	Mid-late	3	A81473-2	Russet	oval	Late	1,2,3,4
R. Burbank	Russet	long	Mid-late	3	A82119-3	Russet	oval	Late	3,4
R. Norkotah	Russet	long	Early	3,4	AC7869-17	Russet	oval	Mid-late	3,4
A74212-1	Russet	long	Mid-late		AC81198-11	Russet	oval	Mid-late	3,4
AO82611-7	Russet	long	Medium	3,4	AO82283-1	Russet	oval	Mid-late	
CO083008-1	Russet	long	Mid-late		AO83037-10	Russet	oval	Medium	3,4
CO81082-1	Russet	long	Medium	4	ATX6-84378-1RU	Russet	oval	Mid-early	
ND1538-1Rus	Russet	long	Mid-early	3,4	CO82142-4	Russet	oval	Mid-late	
Shepody	White	long	Medium		ND671-4Rus	Russet	oval	Early	3,4
					Red LaSoda	Red	round	Mid-late	
					A82705-1R	Red	round	Medium	1

Disease Resistance Reaction: 1 = Early Dying, 2 = Early Blight (foliage), 3 = Scab, 4 = Leaf Roll (net necrosis).

Table 2. Yields

Entry	Total yields[1] Early	Total yields[1] Late	US#1 yields[1] Early	US#1 yields[1] Late
Lemhi R.	368	461	285	366
R. Burbank	403	463	292	394
R. Norkotah	313	325	257	257
A74212-1L	346	534	281	433
A81473-2	286	395	216	332
A82119-3	350	408	287	321
AC7869-17	351	420	303	328
AC81198-11	371	446	286	345
AO82283-1	361	462	272	368
AO82611-7	360	472	271	355
AO83037-10	350	474	273	399
ATX6-84378-1RU	392	447	328	387
C081082-1	216	238	177	177
CO82142-4	320	354	253	280
C0083008-1	342	424	302	366
ND671-4 Rus	314	341	220	229
ND1538-1Rus	369	395	284	256
Shepody	333	311	260	244
Red LaSoda	390	412	343	335
A82705-1R	370	403	271	314

1. Mean yields are given in cwt/a, Early = early harvest (mean of 4 trials) and Late = late harvest (mean of 11 trials).

Table 3. Specific gravity, merit rating and outcome.

Entry	Specific gravity[1]	Mean Merit Score[2] Fry	Table	Trial outcome
Lemhi R.	88	4.0	3.3	check
R. Burbank	80	2.7	2.2	check
R. Norkotah	74	2.0	3.0	check
A74212-12	78	1.3	3.6	end test
A81473-2	83	4.0	3.4	92 trial
A82119-3	84	4.0	3.6	92 trial
AC7869-17	80	3.3	3.0	end test
AC81198-11	81	1.3	2.6	end test
AO82283-1	85	3.7	3.2	drop
AO82611-7	87	4.3	3.3	end test
AO83037-10	78	4.0	3.8	92 trial
ATX6-84378-1RU	77	2.7	3.1	92 trial
CO81082-1	72	1.0	3.1	drop
CO82142-Y	81	1.3	2.8	92 trial
CO083008-1	88	4.7	3.9	92 trial
ND671-4 Rus	70	1.7	2.4	drop
ND1538-1 Rus	74	2.3	3.4	drop
Shepody	81	2.0	3.3	check
Red LaSoda	71	1.0	3.7	check
A82705-1R	73	1.0	3.0	92 trial

1. Specific gravity based on late harvest, (1.0 xx).
2. Scoring is 1 = poorest, 5 = best. For fry, 4 locations were averaged; for table, 6 locations were averaged.

CULTIVARS:GOLDRUSH

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The release of GOLDRUSH, a russet-skinned potato cultivar was announced by the North Dakota State University in 1991. It is targeted for the fresh market and can also be processed for french fries. It produces a high percentage (around 90%) US #1 tubers, good count cartons (about 45% - 70 to 100 counts) and bakers (about 10%).

GOLDRUSH (ND1538-1 Rus) was selected in 1982 by the author. Its parentage is Lemhi Russet and ND450-3 Rus. It has a medium maturity, and the vine is medium and slightly upright. Taste panels indicate that GOLDRUSH is a good eating potato.

GOLDRUSH was rated the 6th, 4th and 2nd best cultivar in the 1989, 1990 and 1991 North Central Regional Potato Variety (NCR) Trials, respectively.

Summary of Properties:

Purpose — mainly fresh market, also frying

Maturity — medium, not as early as R. Norkotah similar to Norgold R.

Yields — equal or better than R. Norkotah; good 70 to 100 count cartons

Vine — medium, slightly upright

Leaves — medium, very dark green

Flower — scant, lavender (pale blue)

Eyes — medium shallow, evenly distributed; in storage, a slight pinkish appearance may be observed

Tubers — long to oblong at maturity; early season, may be roundish; golden russet skin, heavier net than R. Norkotah but less than Centennial R.

Set — medium

Specific gravity — medium

Sugar — medium, as R. Burbank

Stem End — no discoloration observed in Red River Valley (RRV)

External defects — none observed in RRV; may get second growths and be off-shape

Internal defects — none observed in RRV; resistant to hollow heart

Herbicide injury — none observed in RRV

Disease — resistant to scab, moderately resistant to early dying (Verticillium wilt)

Total and US #1 yield, and specific gravity in NCR trials, mean of all locations.

	Total cwt/a	US #1 cwt/a	Specific gravity
1989			
GOLDRUSH	311	236	1.066
NORGOLD R.	272	195	1.067
R. BURBANK	320	174	1.075
1990			
GOLDRUSH	324	268	1.073
NORGOLD R.	268	194	1.072
R. BURBANK	299	215	1.079
1991			
GOLDRUSH	349	303	1.073
NORGOLD R.	289	238	1.071
R. BURBANK	321	228	1.078
Grand Mean:			
GOLDRUSH	328	269	1.071
NORGOLD R.	276	209	1.070
R. BURBANK	313	206	1.077

Yield of tubers greater than 1 7/8 inch and specific gravity. Nebraska trials in 1991 conducted in the Panhandle (PH) and in the southwest (SW) under center-pivot irrigation.

Yield of > 1 7/8 inch tubers	cwt/a PH	mean SW	Specific gravity
GOLDRUSH	320	320	1.071
NORGOLD R.	246	416	1.077
R. NORKOTAH	246	318	1.071
R. BURBANK	264	289	1.077
CENTURY R.	339	327	1.076
FRONTIER R.	279	373	1.077
RANGER R.	462	472	1.071
SHEPODY	325	241	1.069

Yield, percent US #1 and percent dry matter content in trials conducted at Grand Forks and Park River, ND, 1987 to 1991.

	Av. yield cwt/a	US #1 % of yield	Total solids %
GOLDRUSH	164	77	20.0
NORGOLD R.	165	79	20.0
R. NORKOTAH	167	82	19.9
R. BURBANK	76	42	19.4

Spudders

Gary Leever
Secretary-Manager
Potato Certification Assoc. of Nebraska, Alliance, NE

Each year, I come up with some catchy little phrase to describe the potato year, so (drum roll please)—In 1992, the skies were not blue. I mean talk about a cold, wet summer; we sure had it this year. Fortunately, although a cold, wet summer is very detrimental to corn and beans, it has a positive effect on potatoes. As we go into the harvest season, most growers are reporting average to above average yields and quality.

Many people for statistical purpose and crop estimates are always asking our office for details on certification. Therefore I will report the following:

Acres entered for certification in Nebraska for the 1992 crop were 7,804. The breakdown by county was Banner 244, Box Butte 4,922, Cherry 42, Kimball 357, Lincoln 140, Morrill 935, Scottsbluff 70, Sheridan 178, and Sioux 345, and included in the total is 572 acres from Laramie County, Wyoming.

Limited Generation Seed Chart

Also included on this Spudders is the "Limited Generation Seed Chart." This chart was developed by the Certification Section of the Potato Association of America. Using this, each state could tell how a seed lot and its "Generation Number" compares to its own program. It was also developed because brokers were using the conflicts in generation numbers as a sales tool. For instance, if you are purchasing a Generation II from Montana or Idaho, it is the same and should be the same price as a Colorado Generation III. As your certification agency, we use this chart to determine where a seed lot from out of state should be placed in our generation system. As a seed grower or a commercial grower, you should use it. As you can see by the chart a "Generation Number" by itself means nothing, unless you understand the system from which it came.

LIMITED GENERATION CERTIFIED SEED POTATOES
Field Planting Equivalency Table[1]
Prepared by the
Certification Section of the Potato Association of America

	Term[2] used by Agency for seed potatoes harvested from field planting number							
Agency	1[3]	2	3	4	5	6	7	8
Alaska	G1	G2	G3	G4	G5	G6	—	—
California	N	G1	G2	G3	F	C	—	—
Colorado	G1	G2	G3	G4	G5	G6	—	—
Idaho	N	G1	G2	G3	G4	G5	G6	—
Maine	(Maine Potato Board Farm)			G1	G2	G3	G4	G5
Michigan	N	G1	G2	G3	G4	G5	—	—
Minnesota	N	G1	G2	G3	G4	G5	—	—
Montana	N	G1	G2	G3	G4	—	—	—
Nebraska	N	G1	G2	G3	G4	G5	—	—
New York	(Uihlein Farm)		FU1	FU2	FU3	F	—	—
North Dakota	N	G1	G2	G3	G4	G5	—	—
Oregon	N	G1	G2	G3	G4	G5	—	—
Utah	G1	G2	G3	G4	G5	G6	—	—
Washington	N	G1	G2	G3	G4	—	—	—
Wisconsin	(U of W Farm)		FG1	FG2	FG3	FG4	—	—
Canada	PE	E1	E2	E3	F	C	—	—

1—The purpose of this table is to express equivalency of terms used by various certification agencies for seed potatoes harvested from a series of successive field plantings. For specific criteria relating to disease tolerances and other requirements, the reader is referred to the certification regulations of the agency in question.

2—C = certified, E = elite, F = foundation, N = nuclear, U = Uihlein, PE = pre-elite, G = generation.

3—The first field planting utilizes laboratory tested stocks which may be tissue cultured plantlets, greenhouse produced minitubers, stem cuttings or line selections. Contact agencies for details as to types of stocks planted in their programs.

Selecting a Computerized Accounting Program

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The evolution of the computer technology in production agriculture has greatly increased in the last decade. A 1989 survey indicated over 25 percent of Nebraska's farmers and ranchers utilized computers in their business. Since 1989, computer acquisition costs have declined. Obtaining accurate and up-to-date financial records is a major reason cited by farmers and ranchers for purchasing a computer. Financial records for income tax are not sufficient for farm management records. Many management decisions require financial and production information. The amount and usefulness of information, the cost and the time spent varies with software. A "Farm Financial Standards Task Force" (FFSTF) formed by the American Bankers Association has recently developed rules, guidelines, and methodologies for agricultural accounting. When selecting an agricultural accounting package, select software which adheres to the guidelines. Accounting software is available ranging from personal finance to integrated accounting, production, field history, etc. As software becomes more specialized, complexity and costs increase. Integrated packages often include a base system with specialized modules linking to the base unit. The integration of agricultural related modules, level of accounting terminology, and adoption of the financial standards are primary differences between agriculture and business oriented packages.

Before an accounting/management package is purchased, current and long term needs must be evaluated. Following are several questions that should be addressed:

- What types of financial, production, and historical records are required for the farm manager, banker, accountant, or landlord?
- Does the balance sheet and income statement format and ratio analysis conform to your accountant's specifications or the new farm financial standards criteria?
- How comfortable and what is the level of patience the user has with computer operation, accounting terminology, and general record keeping.

Once answered, the complexity of the accounting/management software can be identified. As the user gains better understanding of the computer, software, and accounting procedures, more complex and sophisticated packages may be of greater benefit.

Cash and accrual accounting are two methods of generating financial information. Accrual accounting involves recording income and expenses when they occur. Cash basis accounting is easier because the income and expenses are recorded when the cash is exchanged. This method is acceptable by IRS for farm income tax returns and 97 percent of farmers are cash basis record keepers. The FFSTF recommends accrual accounting. All accounting software will provide a cash based system, but not all accounting software will allow for accrual accounting. Personal finance packages are generally cash based oriented; integrated systems are designed for accrual accounting.

Selecting the right computerized accounting system for your farm/ranch business is important. The system selected will significantly affect your success with computerized record keeping. As illustrated in the accompanying table, twenty-eight percent of the respondents in the 1989 Nebraska survey placed the availability of features as the highest priority factor in selecting an accounting package. Most major software packages offer similar accounting features but may differ in set-up procedures, data entry, and report generation. If a more complex management system is desired, the exchange of information among modules is vital.

Relative Importance of Purchase Factors In Selecting an Accounting Package

	Importance 1=Highest Priority		
	1	2	3
Available Features	28%	15%	14%
Ease of Use	19%	27%	16%
Vendor Support	15%	24%	12%
Price	13%	3%	21%
Documentation	10%	13%	13%

For further information on the selection of a farm accounting package, publications are available summarizing the features of agricultural accounting software. Contact the author at the Panhandle Research and Extension Center (308) 632-1241.

Pesticide Update

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Bravo—Rotational crop restrictions have been removed from the labels of Bravo fungicides. Growers can immediately rotate any crop into a treated field. The EPA reversed its earlier decision of the label restrictions for rotations after reviewing additional research studies.

Ridomil—The EPA recently has accepted changes in the plantback section of the Ridomil MZ58 fungicides. The rotation interval for planting back wheat, barley, and oats has been reduced from 12 months to 40 days.

Dual II has replaced Dual as a preemergent or incorporated herbicide on potatoes. This replacement is effective in Nebraska, eastern Colorado, Kansas, and Indiana.

World Records on Potatoes

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• The world record for eating potatoes is downing three pound or nine tubers in one minute, 22 seconds. It was set by Peter Dowdeswell in August, 1988 in Earls Barton, England.

• After eating 30 two-ounce bags of potato chips in 24 minutes, 33.6 seconds without a drink, Peter Tully of Brisbane, Australia set the world record in May, 1969.

• The largest potato chip ever produced was measured 4 inches by 7 inches. It was made by the Charles Chip, Inc. of Mountville, PA in February, 1977.

• On September 4, 1982 before a Potato Bowl football game in Grand Forks, ND, a single-serving of mashed potatoes was prepared weighing 18,260 lb. using a concrete truck. It covered a 256 square-foot platform.

• A 660-lb Spanish omelette was prepared by Jose Antonia Ribera Casal in Caracacia, Spain, in May, 1987. It was made from 1,102 lbs of potatoes, 5,000 eggs, 176 lbs red peppers, 22 lbs salt, and 33 gals of oil.

"Where's the Spud? I'm hungry!"
(source: Guiness Book of World Records, 1989)

UNIVERSITY OF NEBRASKA-LINCOLN, COOPERATING WITH THE COUNTIES AND THE U.S. DEPARTMENT OF AGRICULTURE