

# New Enzyme Treatment May Improve Dairy Producers' Profits

BROOKINGS, S D—Higher profits for dairy producers through reduced feed costs are possible by treating forages with enzymes, according to a study conducted by South Dakota State University dairy researcher, David J Schingoethe.

He reported on the effects of direct feeding a cellulase and xylanase enzyme mixture on forage digestibility at the American Dairy Science Association and American Society of Animal Science joint Midwest Section March 16-18 in Des Moines, Iowa. Schingoethe also reported on the enzyme study at the South Dakota Dairy-Forage Conference in Brookings March 4.

"Forages are our main source of energy for dairy cows and the cheapest source of energy," said Schingoethe. "If we can get the same milk production by feeding treated forages as with feeding grain, producers can enjoy higher returns."

In short, cellulase and xylanase give cattle a head start on digestion, said Schingoethe. The two enzymes are currently found in the dairy cow rumen in small amounts and their func-

tion is to aid the digestion process. Years ago, researchers found if they added these enzymes to silage, digestibility of forages was improved.

In Schingoethe's study, the cellulase and xylanase mixture was applied to the forage portion of a corn silage and alfalfa hay based ration at the time of feeding. Cows were fed one of five treatment diets for a 12-week period. Diets one through four were 55 percent forage and 45 percent concentrate. Diets two through four were treated with enzymes. Treatment levels varied from diet to diet. Diet five was an untreated control of 45 percent forage and 55 percent concentrate.

Within two to four weeks, milk production increased due to enzyme treatments in diets two through four and was similar to production of cows fed diet five, the high grain diet. This was maintained throughout the remainder of the experiment.

Schingoethe is conducting an experiment to determine the best time to start using the treatment, before calving, at the time of calving or after the cow achieves maximum milk production.

1939 JD H, runs good, good rubber & sheet metal, \$2200 OBO. Mercersburg, 717/328-2521 evenings leave message.

1942 Farmall H, runs, needs paint, \$800. Somerset Co., NJ, (908)221-9142.

1948 Farmall Cub tractor, w/furrow plow, cultivators, 4' sickle bar, extra draw bar. Redone 4-years ago, runs & looks great, \$2300. 717-684-2898 anytime, leave message.

1958 JD 720 diesel, standard, pony start, restored, \$7000. 717/485-9264.

1982 diesel Volkswagon Jetta, 4-door, 124,000 miles, 45/MPG average, excellent condition, \$1,800 OBO. Would consider good manure spreader for equal trade. (717)334-6357.

1994 Case D100XR backhoe attachment for skid loader, excellent condition, 18" bucket, new 12" bucket, \$4900. 610-287-9570

1994 JD 9600 4WD, duals, w/925 flexhead/cart, 1,691 engine hrs. \$110,000. 1992 JD 9400 w/920 flexhead/cart, 1,642 engine hrs. 1,109 separator hrs. \$77,500. Machines are in excellent condition no ad solicitors. 410-758-6652.

1997 MF 4x4 tractor, 250 hrs., front loader, 6' snowblower, 6' finish deck, turf tires, excellent condition. 717-375-2043

(1) Jen set 350 KW Detroit power, 1449 hrs., \$14,500. (1) 6BT 6 cyl turbo Cummins, good \$3,500. (1) 2-71 Detroit low hrs., \$2,000. (1) 353 Detroit power unit, good, \$2,400. Several low time 1990 671 TA 285 hp, \$2,700 each. Several 3 cyl. 4 cyl and 6 cyl JD turbo and non-turbo diesel units. (717)445-9907.

200 Gallon field sprayer, 30 foot boom, excellent condition, \$475. Dauphin Co. 717-599-5769

2010 gas, good condition, \$3600. Peachbottom, PA 17563. 717-548-2368 after 6pm

2130 JD tractor w/rabbit and turtle, in good condition w/38" rubber. Milflin County. \$6,200/obo. 717-899-6121.

2 Disc Bines, Gehl Models 2330, 2350. Working Condition. 973-383-5766. Leave Message.

(2) NH 495 haybines, 12' cut, good condition, \$1,995 each. (717)374-6331.

2 roller sorting tables. Blueberry cleaning machine. Axle for 2-wheel wagon. 609/561-5279 leave message.

38' bale elevator, new chains & bolts on paddles, excellent condition, \$1400. Small bale chopper, 5hp, electric motor, hardly used, \$800. Weaverline feed cart, 430 hydro, painted steel box w/1' extension, good condition, needs batteries, \$1200. Oliver 4R cultivator, \$500. 610-987-3433

38" Shap on duels, good condition. \$500. Call after 6pm. 609-589-2637.

3pt field cultivator. 16' flatbed hay wagon. 717-665-4743

Bagger 8' Polyfarm; gooseneck stock trailer. 410/836-2283.

BELTING: We specialize in flat belting, cut to order, baler throwers, self unloading wagons, long table blower belts. Franklin Co. 717-263-0573. NO Sunday calls.

Bradco 11' HD backhoe attachment w/quick hitch brackets for L Series Kubota tractors, \$5900 OBO. 717/859-3533.

Brand new manifolds for tractors, 1930-1975. 507-433-0073 anytime.

4630 JD 3-remotes, CAQ, front weights, top link, 18.4x38 cast axle duals, 5772 hrs., 180hp, \$20,000. very good condition. 717-534-1253

48" potato washer. (610)286-9510.

4 McCormick Deering 10-20 tractors, 2 painted & running, 1 running needs impulse on mag, 1 dismantled for restoring, extra parts, \$4000/all. Massey Harris Pony restored, \$2000, \$400. (717)427-8971.

500 gal. sprayer w/Hardi booms; Gehl 910 16' 3-beater tandem forage wagon; 16' roof for Badger wagon. 610/967-1094 after 7pm.

504 Int gas tractor, immaculate, perfect condition, \$4,000. (302)492-0318.

5300 JD 4wd, 120 hrs garage kept, new cond. \$24,000. York county. 717-428-9207.

6R corn planter, White 5100, liquid, no-till, fully equipped, \$3500. Stone picker, hyd. bucket, \$1500. 610/252-7091.

7000 6-30 corn planter, HD yetter sod cutters, UV opener blades, monitor, good cond. Has dry fertilizer, needs repair. \$4,250. 8 0 4 - 4 5 7 - 4 5 3 0 / 804-457-4495.

7000 JD corn & bean planter, 8-30 conversion, has Kelderman fold transports as 4R, has JD 300 pop monitor, will hook into radar, \$7500 Felton, DE, can arrange delivery. 302/284-8774.

743 Bobcat. Hesston round bale mover, trailer type. Metal feeder wagon. Farm is sold, MUST SELL! 814-634-5939.

767 Uni Super chopper. 763, 3R corn head. 761 hay pickup head. All good working condition. 717-624-2438

900 Fox chopper, 2R, good working condition. #8 NH silage wagon, good condition. 114 JD silage wagon, good condition. 717-624-2438

AC 4R no-till corn planter, \$500. NH 36 flail chopper, \$700. (215)249-1826.

AC 4R planter, liquid fertilizer, not no-till, extra units, \$600. 717-463-3938 NO Sunday calls.

AC 600 9R no-till planter, dry fertilizer, fiberglass boxes, good condition, \$1500. 302-674-8761

AC C w/6' Woods belly mower, good condition, \$2,275. Lancaster County, evenings, (717)336-1282.

AC WD45 new rear tires, wheels painted, new buggy top \$2,450. AC rotobaler, VG, original condition, \$600. AC PTO tedder rake works, needs restore, \$200. South Jersey, (609)625-2931.

Ag Tech air blast sprayer, 200 gallon, engine model #3003, \$1500. York ammonia compressor, 10hp, 2-room units, \$850. 717-838-5370

Allis Chalmers CA tractor w/2 bottom plow and 2R cultivator, original owner, barn kept, \$2,800. Bucks Co. After 6pm. (215)536-7997.

Antique Tractors: JD 1944D \$2,500; 1936D \$3,000; 720 LP \$1,700; 60 Orchard full pin \$5,800; 70 Oliver w/loader \$1,600; 1961 Mack Thermo-dyne \$1,000. (914)566-9184.

Save Over 50% on used John Deere tractor parts newer than 2 cylinder. Save up to 40% on new replacement parts for JD and IH. We ship. Nelson Parts, (716)526-6705, (800)730-4020.

BATWING MOWER WOODS 3240, 20', new w/warranty, \$13,500. 410-833-9081

Badger Forage Wagon Tandem Axel, Roof, Good good condition. 717-786-2839.

Lancaster Farming, Saturday, May 23, 1998-C5

Hay elevator, ridge type, approx. 120', \$2100 OBO. 410/836-8905 after 7pm.

Hay tedder, Grimm, PTO driven, 8', excellent working condition, \$850. 410-378-3898 Cecil Co.

HD-5 AC Crawler Loader, rebuilt diesel, extra track, can see at Amos Stauffer, Ephrata, 717-536-3626

Brillion packer/feeder: (1) 10' pull-type, (1) 8' 3pth, both rebuilt, \$2250 each; JD KBA 20&24 disc; NI 323, 1R corn picker \$1250; NI 17A, GR. DR. manure spreader, rebuilt, \$1450; MM 335 utility tractor V-good, \$2550; JD 750 compact diesel, w/loader & new 5' finish mower, \$9000. Thom Wheary Jr., 717/687-0102.

Buying used equipment from tractors to manure spreaders-one piece or all Phone Dennis, 1-888-496-9120.

CASE 930, diesel, Comfort King, 85 hp, dual hyd., 3 pt., 540 PTO, WF, good rubber, \$4,800. 410-833-9091

Caboose potbelly stove, fair condition, \$200. Overhead door, new, 13x13, fully insulated, never used, \$1250. Combination generator/welder, 225/200 AMP, Airco Wasp, 16hp, powered by Onan, \$450. 610-347-0688

Case 1200 Traction-King cab dozer blade, 451 turbo, 1000 PTO, \$4,500. South Jersey, (609)625-2931.

Case 1370 cab tractor, 160 hp, 1,000 hrs on new motor, rebuilt powershift \$7,500. CIH 5300 grain drill, 20x6 grass seeder, like new \$7,000. JD 1210-A grain cart, 400 bushel \$3,600/obo. 717-524-0558.

Case-IH 2144 combine 600 hrs. field-tracker, rock-trap chopper bin-ext. 1063 cornhead 1020 flex-head. 301-371-5964 after 5pm.

CaseIH881 Harvester w/2 row corn head \$3650, 7 1/2' grass head \$1350, JD2810 5X variable plow \$5400. 717-273-6105

Century hi-crop 3pth spray rig w/20' adjustable boom. Call after 6pm, (717)369-5960.

CLOSE OUT SALE on all tillage. Save on JD, Krause, IH discs, chisels, field cultivators. Zeisloft Used Farm Eq. 800/919-3322.

CORN PLANTER AC 4 row, no-till, no fert., #333, \$350/offer. 410-833-9091

CORN PLANTER JD 3 pt, 3 row, no-till, \$800. 410-833-9091

Deutz engines: 80hp rebuilt \$3,450; 50hp 1,400 hrs \$3,750 w/clutches, piston/cylinder kits for 912 Deutz \$130 each. (717)354-7267.

Dismantling for Parts: Hundreds of farm tractors new and old several JD 2 cylinders also dozers and track loaders. Call for any part you might need. Atkins Tractor Salvage. Union WV 24983. Phone 304-772-3741.

INT 1190 Mower conditioner, shed kept, ready for the field. Call mornings after 7:30am-717-949-3769.

Int. 120 forage wagon, 3rd beater w/roof, \$1400; Fissler TMR mixer cart, Honda engine, ready to feed, \$2800. 717/523-9598.

IH300 tractor w/ dual hydraulic system, sickle bar mower, post hole auger, front blade, tire chains, garage kept. \$4,500. 610-967-1747.

IH 35 dual dolly wheel rake, very good condition. JD 670 single dolly wheel rake. 717-235-1766

IH #35 hay rake, ground drive, dolly wheels. JD 400 rotary hoe. 717-949-3498

IH 404, gas, tri, runs well, \$1,700 410-833-9091

IH 425 baler w/#15 thrower in excellent condition, \$2,500. Somerset Co, (814)445-4971.

IH 455 corn planter, dry fertilizer, fair condition. 717-528-4655 Adams Co.

IH 560 tractor, TA, PS, fast hitch. 1-owner. 717-235-1766 York Co.

IH 574 gas tractor, 1490 hrs, w/Farmhand F348 loader; IH 470 disc 13'. Both excellent. 410/348-5146.

IH 820 flex head, excellent condition, 13', \$4000; 810 grain head 13', \$2000. 610/287-1800.

IH 966 fender tractor, good condition, \$6,900. (814)467-8839.

IH 986 cab and air, wts., radials, good condition, \$12,400. (717)865-3976.

IH baler #37. IH haybine, #990. Both excellent condition. Retiring, selling farm. 609-723-2425

IHC threshing machine 20x32, always stored inside. 9' Brillion cultipacker, center bearings. Both in good condition. York Co. 717-292-1343

IH M63 3pt, 4 row wide rear cultivator, adjustable, good, \$400. Berks. 610-944-9819

IH used tractor parts; 706 gas, Diesel 1026 hydro, H-503 combine TD9 crawler. Buying IH tractors. Berks. 610-683-3428.

Int. 183 6R S-tine cultivator, \$975; NH 256 rake w/ dolly wheels, \$2100; Noble 6R S-tine cultivator, \$975; Pequea 710 hay tedder, \$1025. 610/562-4464.

Int 484 diesel tractor, 42hp w/roll bar, 1,200 actual hrs., \$8,750. (540)348-5080.

Int 986 CAH 1090 original hrs. Very, very nice. Axle duals incl. \$18,500. firm. 609-448-0155.

JD 1010 1963 model w/5' brush mower, new paint/tires, rebuilt engine. Excellent cond. \$4,500. 717-423-6300.

JD 1219 haybine w/ windrow attachment, very clean. \$2500. 814-495-5483 8am-5pm

JD 1327 Discbine, hyd. tongue, very good condition, IH 1190 9' haybine, hyd. tongue, good condition. 610/967-1094 after 7pm.

JD 1460 diec MoCo, discbine, like new rollers, excellent condition. 717-235-1766

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## 1 FARM EQUIPMENT

12' Direct cut head, \$2000 OBO; 6' pickup head, \$400 OBO. Both fit Hesston or Field Queen chopper. Portable 50"x6" PTO grain elevator, \$500 OBO. 3 0 1 / 8 9 8 - 5 8 7 1 301/898-5505.

1740 Case uni-loader, 4 cyl. diesel, front & rear hydraulics. 717-443-9931

1938 AC WC, PTO and belt pulley, original, excellent condition, \$1,225. Lancaster County, evenings, (717)336-1282.

1939 JD A un-styled, SS #470530, motor loose, flat cutoff on rear, \$1200. Cockshutt 30 WF, original paint, runs excellent, \$2500. Cockshutt 540, new motor, excellent tin work, \$2500. JD 520, NF, new motor, tin good, needs paint, \$2500. JD 2-cyl parts, Cockshutt parts. 607-898-3154

4020 Combine w/913 & 443 head; 10' offset disc; F600 18' aluminum cattle grain truck; JD 8300 big box grain drill. 610/746-1824.

4160 NI hay rake, ground driven, \$3,000. Int 16' drag harrow, hydraulic trailer, \$300. (717)682-9581.

430 Oliver combine, 12' grain head, \$1200 OBO. 717/637-4887 No Sunday calls.

45 bushel Rissler TMR cart. Harvester, roller meter mill w/6' auger, used 1-year. 717-869-1095

(16) 36" Cool Air fans w/ .5hp motors. 717/859-3158.

1737 Case skidloader rebuilt engine, new radiator \$3,200. Dunham quick detach loader no bucket, fits David Brown 995. \$1,200. 717-286-0650.

16" and 18" Bale Throw Wagons and Weaverline feed cart. 610-488-6903

1737 Case skidloader rebuilt engine, new radiator \$3,200. Dunham quick detach loader no bucket, fits David Brown 995. \$1,200. 717-286-0650.



### J.D. 4420 Combine

2100 hrs., grain loss monitor; tire size 23.1x26, very clean, 443 corn head

**\$20,000**

**(717) 733-0121**

JD 7000 12 roll front fold planter, totally rebuilt in '97, planted 580 acres, new liquid fertilizer tanks & plumbing, fertilizer openers & piston pump New style off-set closing wheels, heavy duty gauge wheels.

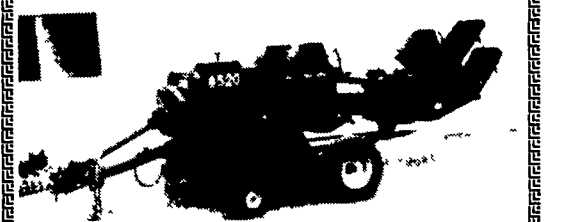
1997 JD 3970 forage harvester w/3RN corn head, all electric, over hydraulic cab controls, used on 420 acres.

1997 Ag Bagger, G-6000, handles 9 by up to 200 ft. bags, inoculator for use w/forage wagons, used on 420 acres.

JD 8RN or 6RN rear mounted cultivators.

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### IH Case 8520

In Line Baler w/Thrower, Ex. Cond., Like New, Slightly Used

**\$7,200**

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