MONSANTO CO /NEW/

Form 3

December 10, 2008

FORM 3 UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549

OMB APPROVAL

OMB Number:

3235-0104

Expires:

response...

January 31, 2005

0.5

Estimated average burden hours per

SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934,

INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF

Section 17(a) of the Public Utility Holding Company Act of 1935 or Section

30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting 2. Date of Event Requiring 3. Issuer Name and Ticker or Trading Symbol Person * Statement MONSANTO CO /NEW/ [MON] Hartley Tom D (Month/Day/Year) 12/08/2008 (Last) (First) (Middle) 4. Relationship of Reporting 5. If Amendment, Date Original Person(s) to Issuer Filed(Month/Day/Year) 800 N. LINDBERGH BLVD. (Check all applicable) (Street) 6. Individual or Joint/Group Filing(Check Applicable Line) 10% Owner Director _X_ Form filed by One Reporting _X__ Officer Other Person (give title below) (specify below) ST. LOUIS, MOÂ 63167 Form filed by More than One Vice President and Treasurer Reporting Person (City) (State) (Zip) Table I - Non-Derivative Securities Beneficially Owned 2. Amount of Securities 4. Nature of Indirect Beneficial 1. Title of Security Beneficially Owned Ownership Ownership (Instr. 4) (Instr. 4) Form: (Instr. 5)

1. Title of Security
(Instr. 4)

2. Amount of Securities
Beneficially Owned
(Instr. 4)

Common Stock

2. Amount of Securities
Beneficially Owned
(Instr. 4)

Common Stock

3. 4. Nature of Indirect Ber
Ownership
(Instr. 5)

Common Stock

2,000

D
Â

Common Stock

4,322

I By 401(k) Plan

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

SEC 1473 (7-02)

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Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

| 1. Title of Derivative | 2. Date Exercisable and | 3. Title and Amount of | 4. | 5. | 6. Nature of Indirect |
|------------------------|-------------------------|------------------------|-------------|------------|-----------------------|
| Security | Expiration Date | Securities Underlying | Conversion | Ownership | Beneficial |
| (Instr. 4) | (Month/Day/Year) | Derivative Security | or Exercise | Form of | Ownership |
| | | (Instr. 4) | Price of | Derivative | (Instr. 5) |
| | | | Derivative | Security: | |

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| | Date Exercisable | Expiration Date | Title | Amount or Number of Shares | Security | Direct (D) or Indirect (I) (Instr. 5) | |
|-----------------------|------------------|--------------------|-----------------|----------------------------------|------------|--|---|
| Option (right to buy) | 04/25/2004(1) | 04/24/2013 | Common Stock | 11,000 | \$ 8.0725 | D | Â |
| Option (right to buy) | 03/15/2005(2) | 02/26/2014 | Common Stock | 11,860 | \$ 16.1925 | D | Â |
| Option (right to buy) | 11/15/2005(3) | 10/28/2014 | Common Stock | 17,900 | \$ 20.805 | D | Â |
| Option (right to buy) | 11/15/2006(4) | 10/27/2015 | Common Stock | 9,600 | \$ 29.2175 | D | Â |
| Option (right to buy) | 11/15/2007(5) | 10/25/2016 | Common Stock | 6,600 | \$ 44.06 | D | Â |
| Option (right to buy) | 07/15/2008(6) | 07/14/2017 | Common Stock | 330 | \$ 70.06 | D | Â |
| Option (right to buy) | 11/15/2008(7) | 10/21/2017 | Common Stock | 4,900 | \$ 87.14 | D | Â |
| Option (right to buy) | 11/15/2009(8) | 10/19/2018 | Common Stock | 4,960 | \$ 89.45 | D | Â |
| Phantom Share Units | (9) | (9) | Common Stock | 1,588 | \$ (10) | D | Â |

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|--|---------------|-----------|------------------------------|-------|
| 1 8 | Director | 10% Owner | Officer | Other |
| Hartley Tom D 800 N. LINDBERGH BLVD. ST. LOUIS, MO 63167 | Â | Â | Vice President and Treasurer | Â |

Signatures

Christopher A. Martin, by Power of Attorney 12/10/2008

**Signature of Reporting Person Date

Explanation of Responses:

- * If the form is filed by more than one reporting person, see Instruction 5(b)(v).
- ** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).
- One-third of the options became exercisable on April 25, 2004, one-third of the options became exercisable on March 15, 2005 and one-third of the options became exercisable on March 15, 2006, subject to the terms and conditions of the Monsanto Company Long Term Incentive Plan.
- One-third of the options became exercisable on March 15, 2005, one-third of the options became exercisable on March 15, 2006 and one-third of the options became exercisable on March 15, 2007, subject to the terms and conditions of the Monsanto Company Long Term Incentive Plan.

Reporting Owners 2

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- One-third of the options became exercisable on November 15, 2005, one-third of the options became exercisable on November 15, 2006 and one-third of the options became exercisable on November 15, 2007, subject to the terms and conditions of the Monsanto Company Long Term Incentive Plan.
- One-third of the options became exercisable on November 15, 2006, one-third of the options became exercisable on November 15, 2007 and one-third of the options became exercisable on November 15, 2008, subject to the terms and conditions of the Monsanto Company Long Term Incentive Plan.
- One-third of the options became exercisable on November 15, 2007, one-third of the options became exercisable on November 15, 2008 and one-third of the options become exercisable on November 15, 2009, subject to the terms and conditions of the Monsanto Company Long Term Incentive Plan.
- One-third of the options became exercisable on July 15, 2008, one-third of the options became exercisable on November 15, 2008 and one-third of the options become exercisable on November 15, 2009, subject to the terms and conditions of the Monsanto Company Long Term Incentive Plan.
- One-third of the options became exercisable on November 15, 2008, one-third of the options become exercisable on November 15, 2009 and one-third of the options become exercisable on November 15, 2010, subject to the terms and conditions of the Monsanto Company Long Term Incentive Plan.
- One-third of the options become exercisable on November 15, 2009, one-third of the options become exercisable on November 15, 2010 and one-third of the options become exercisable on November 15, 2011, subject to the terms and conditions of the Monsanto Company Long Term Incentive Plan.
- (9) The reported phantom share units were acquired under Monsanto Company's non-qualified defined contribution plan and are to be settled upon the reporting person's retirement or other termination of service.
- **(10)** 1 for 1

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *See* Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.