
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 11-K

Annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934

For the fiscal year ended December 31, 2004

Commission File Number 1-5725

A. Full title of the plan and the address of the plan, if different from that of the issuer named below:

Quanex Corporation Hourly Bargaining Unit Employees Savings Plan

B. Name of the issuer of the securities held pursuant to the plan and the address of its principal executive office:

Quanex Corporation

**1900 West Loop South, Suite 1500
Houston, TX 77027**

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Benefits Committee
Quanex Corporation
Houston, TX

RE: Quanex Corporation Hourly Bargaining Unit Employee Savings Plan

We have audited the accompanying statements of net assets available for benefits of the Quanex Corporation Hourly Bargaining Unit Employee Savings Plan (the "Plan") as of December 31, 2004 and 2003, and the related statements of changes in net assets available for benefits for the years then ended. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Plan is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such financial statements present fairly, in all material respects, the net assets available for benefits of the Plan as of December 31, 2004 and 2003, and the changes in net assets available for benefits for the years then ended in conformity with accounting principles generally accepted in the United States of America.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule of assets (held at end of year) as of December 31, 2004 is presented for the purpose of additional analysis and is not a required part of the basic financial statements, but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. This schedule is the responsibility of the Plan's management. Such schedule has been subjected to the auditing procedures applied in our audit of the basic 2004 financial statements and, in our opinion, is fairly stated in all material respects when considered in relation to the basic financial statements taken as a whole.

/s/ DELOITTE & TOUCHE LLP

DELOITTE & TOUCHE LLP

Houston, Texas
June 24, 2005

	DECEMBER 31,	
	2004	2003
Assets:		
Investments at fair value (see Note C)	\$ 19,433,249	\$ 14,261,690
Participant loans	\$ 41,031	—
Employee contributions receivable	244,855	103,530
Net assets available for benefits	\$ 19,719,135	\$ 14,365,220

See notes to financial statements.

3

QUANEX CORPORATION
HOURLY BARGAINING UNIT EMPLOYEES SAVINGS PLAN
STATEMENTS OF CHANGES IN NET ASSETS AVAILABLE
FOR BENEFITS

	DECEMBER 31,	
	2004	2003
Investment income:		
Interest and dividends	\$ 366,941	\$ 180,368
Net appreciation in fair value of investments (see Note C)	1,511,005	2,082,028
	1,877,946	2,262,396
Employee contributions	4,342,600	1,305,308
Interest on participant loans	629	—
Total additions	6,221,175	3,567,704
Benefit payments	871,055	907,603
Administrative fee (see Note D)	27	25
Total deductions	871,082	907,628
Transfers between plans (see Note G)	3,822	(221,172)
Increase in net assets available for benefits	5,353,915	2,438,904
Net assets available for benefits:		
Beginning of year	14,365,220	11,926,316
End of year	\$ 19,719,135	\$ 14,365,220

See notes to financial statements.

4

QUANEX CORPORATION
HOURLY BARGAINING UNIT EMPLOYEES SAVINGS PLAN
EIN: 38-1872178; PN 015

Schedule H, Line 4i - Schedule of Assets (Held at End of Year)
December 31, 2004

(a)	(b) Identity of issue, borrower, lessor or similar party	(c) Description of investment including maturity date, rate of interest, collateral, par, or maturity value	(d) Cost	(e) Current Value
*	Fidelity	Puritan Fund	\$ 1,650,984	\$ 1,733,016
*	Fidelity	Magellan Fund	4,008,356	4,055,561
*	Fidelity	Contrafund	1,487,444	1,749,711
*	Fidelity	Growth & Income Fund	1,734,925	1,731,926
*	Fidelity	Independence Fund	1,171,560	1,019,338
*	Fidelity	Overseas Fund	409,968	463,975
*	Fidelity	Balanced Fund	496,573	551,696
*	Fidelity	Blue Chip Fund	1,097,255	1,104,739
*	Fidelity	Asset Manager Fund	151,141	156,118
*	Fidelity	Low-Priced Stock Fund	900,097	1,088,131
*	Fidelity	Government Money Market Fund	2,987,677	2,987,677
	Templeton	Foreign Fund	294,490	362,863
	Neuberger & Berman	Partners Trust Fund	117,317	139,274
		Total Mutual Fund Assets	16,507,787	17,144,025

* Quanex Corporation	Unitized common stock	786,213	1,533,728
* Fidelity	Common/Commingled trust	755,496	755,496
Participant loans	Loan maturing within 2 to 5 years, bearing interest at 5.0% to 10.5%		41,031
Total Investments		\$ 18,049,496	\$ 19,474,280

* Party-in-Interest

5

**QUANEX CORPORATION
HOURLY BARGAINING UNIT EMPLOYEES SAVINGS PLAN**

**NOTES TO FINANCIAL STATEMENTS
YEARS ENDED DECEMBER 31, 2004 AND 2003**

A. DESCRIPTION OF THE PLAN

The following description of the Quanex Corporation Hourly Bargaining Unit Employees Savings Plan (the "Plan") provides only general information. Participants should refer to the Plan document for more complete information.

- (1) General. The Plan is a defined contribution plan which covers hourly paid union employees of the MACSTEEL locations of the Quanex Corporation (the "Company"). The Plan is subject to the Employee Retirement Income Security Act of 1974 ("ERISA"). Fidelity Management Trust Company ("Fidelity" or the "Trustee") holds the assets of the Plan in trust. The Benefits Committee (the "Committee"), appointed by the Company's Board of Directors, serves as the Plan administrator.

Effective January 1, 2004, hourly paid union employees of MACSTEEL Monroe, Inc. became participants in the Plan.

- (2) Contributions. Participants may elect to contribute up to 50 percent (15% before July 1, 2004) of their before-tax or after-tax compensation as defined by the Plan agreement.
- (3) Participant Accounts. Each participant's account is credited with the participant's contribution and an allocation of investment income, which is based on individual participant account balances as of the end of the period in which the income is earned.
- (4) Vesting. Participants are immediately vested in their contributions and the related earnings.
- (5) Payment of Benefits. Upon termination of service, the participant may elect to receive a lump sum distribution equal to the total amount of vested benefits in his or her account. Terminated participants with an account balance of less than \$1,000 will automatically receive a lump sum distribution (\$5,000 before March 28, 2005).
- (6) Loans. No loans shall be made to participants under the Plan. Employees of MACSTEEL Monroe, Inc. who had a loan outstanding under the Cargill Partnership Plan on December 31, 2003, shall be allowed to roll over the loan to the Plan. Loans' mature within 2 to 5 years and bear interest at 5% to 10.5%.

B. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

- (1) Accounting Basis. The financial statements of the Plan are prepared on the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America.

6

- (2) Investment Valuation. The Plan recognizes net appreciation or depreciation in the fair value of its investments. Investments are reflected at fair value in the financial statements. Fair value of mutual fund assets is determined using a quoted net asset value. Fair value for Quanex Corporation common stock, which is listed on the New York Stock Exchange, is determined by using the last recorded sales price. The recorded value of the common/commingled trust is at face value, which is fair value.

Purchases and sales of securities are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the ex-dividend date.

Management fees and operating expenses charged to the Plan for investments in the mutual funds are deducted from income earned on a daily basis and are not separately reflected. Consequently, management fees and operating expenses are reflected as a reduction of investment return for such investments.

- (3) Use of Estimates. The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and changes therein and disclosure of contingent assets and liabilities. Actual results could differ from these estimates.
- (4) Administrative Expenses. The Company pays the administrative expenses of the Plan, except loan set up and carrying fees and redemption fees imposed on certain Fidelity funds.

- (5) Payment of Benefits. Benefit payments are recorded when paid.
- (6) Risks and Uncertainties. The Plan utilizes various investment instruments, including mutual funds and common stock. Investment securities, in general, are exposed to various risks, such as interest rate, credit, and overall market volatility. Due to the level of risk associated with certain investment securities, it is reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect the amounts reported in the financial statements.

C. INVESTMENTS

The following are investments that represent 5 percent or more of the Plan's investments.

	December 31, 2004		December 31, 2003	
	Shares	Amount	Shares	Amount
Fidelity Magellan Fund	39,075	\$ 4,055,561	35,201	\$ 3,440,572
Fidelity Government Money Market Fund	2,987,677	2,987,677	2,679,858	2,679,858
Fidelity Contrafund	30,837	1,749,711	19,489	961,781
Fidelity Puritan Fund	91,452	1,733,016	68,736	1,269,555
Fidelity Growth & Income Fund	45,327	1,731,926	32,236	1,148,625
Quanex Corporation Unitized Stock	48,551	1,533,728 *	30,903 *	660,703
Fidelity Blue Chip Fund	26,486	1,104,739	20,929	829,421
Fidelity Low-Priced Stock Fund	27,034	1,088,131 *	12,714 *	444,746
Fidelity Independence Fund	57,170	1,019,338	64,055	1,028,716

* presented for comparative purposes only

7

During the years ended December 31, 2004 and 2003, the Plan's investments (including gains and losses on investments bought and sold, as well as held during the year) appreciated in value as follows:

	2004	2003
Mutual funds	\$ 1,003,439	\$ 1,907,977
Quanex unitized common stock	507,566	174,051
	<u>\$ 1,511,005</u>	<u>\$ 2,082,028</u>

D. RELATED PARTY TRANSACTIONS

Certain Plan investments are shares of mutual funds managed by Fidelity. Fidelity is the trustee as defined by the Plan and, therefore, these transactions qualify as party-in-interest transactions. In addition, the Plan invests in shares of Quanex Corporation unitized common stock. Quanex Corporation is the Plan sponsor as defined by the Plan and, therefore, these transactions also qualify as party-in-interest transactions. As of December 31, 2004 and 2003, the value of Quanex Corporation common stock held by the Plan was \$1,533,728 and \$660,703, respectively.

E. PLAN TERMINATION

Although it has not expressed any intention to do so, the Company has the right under the Plan to terminate the Plan at any time subject to the provisions set forth in ERISA. In the event of Plan termination, the assets held by the Trustee under the Plan will be valued and fully vested, and each participant will be entitled to distributions respecting his or her account.

F. FEDERAL INCOME TAX STATUS

The Plan is subject to specific rules and regulations related to employee benefit plans under the Department of Labor and the Internal Revenue Service. The Plan has received a favorable letter of tax determination dated August 19, 2002. As such, the Plan is qualified under Section 401(a) of the Internal Revenue Code (the "Code") and, as a result, the trust is exempt from federal income tax under Section 501(a) of the Code. Although the Plan has been amended since receiving the determination letter, the Company believes the Plan is currently designed and being operated in compliance with the applicable requirements of the Code. The Company believes the Plan was qualified and the related trust was tax-exempt as of the financial statement dates.

G. TRANSFER OF ASSETS

Account balances of \$(60,829) and \$(221,172) were transferred between the Plan and the Quanex Corporation Employee Saving Plan in plan years 2004 and 2003, respectively.

Loan balances from employees of MACSTEEL Monroe, Inc. totaling \$64,651 were transferred into the Plan in 2004.

8

SIGNATURES

The Plan. Pursuant to the requirements of the Securities Exchange Act of 1934, the trustees (or other persons who administer the employee benefit plan) have duly caused this annual report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: June 27, 2005

/s/ Terry M. Murphy
Terry M. Murphy, Benefits Committee

9

INDEX TO EXHIBITS

23.1 Consent of Independent Registered Public Accounting Firm
99.1 Certification by chief executive officer and chief financial officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

10

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement No. 33-46824 of Quanex Corporation on Form S-8 of our report dated June 24, 2005, appearing in this Annual Report on Form 11-K of the Quanex Corporation Hourly Bargaining Unit Employees Savings Plan for the year ended December 31, 2004.

/s/ DELOITTE & TOUCHE LLP

DELOITTE & TOUCHE LLP

Houston, Texas

June 24, 2005

CERTIFICATION PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002

We hereby certify that the accompanying Report of Quanex Corporation Hourly Bargaining Unit Employees Savings Plan (the "Plan") on Form 11-K for the year ended December 31, 2004 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Report fairly presents, in all material respects, the financial condition and results of operations of the Plan.

June 27, 2005

/s/ RAYMOND A. JEAN

Raymond A. Jean
*Chairman of the Board, President and
Chief Executive Officer*

/s/ TERRY M. MURPHY

Terry M. Murphy
*Senior Vice President—Finance and
Chief Financial Officer*
