



Plant Licensing Task Force

August 21, 2006

***Beverly R. Durgan
Director – Minnesota
Agricultural Experiment
Station***

UNIVERSITY OF MINNESOTA

Policies and Procedure for Variety Releases

- **Regents Policy on Intellectual Property**
- **Germplasm Release Policy**
- **Release Procedures for Horticulture Cultivars and Germplasm**
- **Release Procedures for Field Crop Varieties**
 - **Horticulture Variety Review Committee**
 - **Crop Variety Review Committee**
 - **MAES**
 - **PTM**
 - **CFANS**

Plant License Task Force

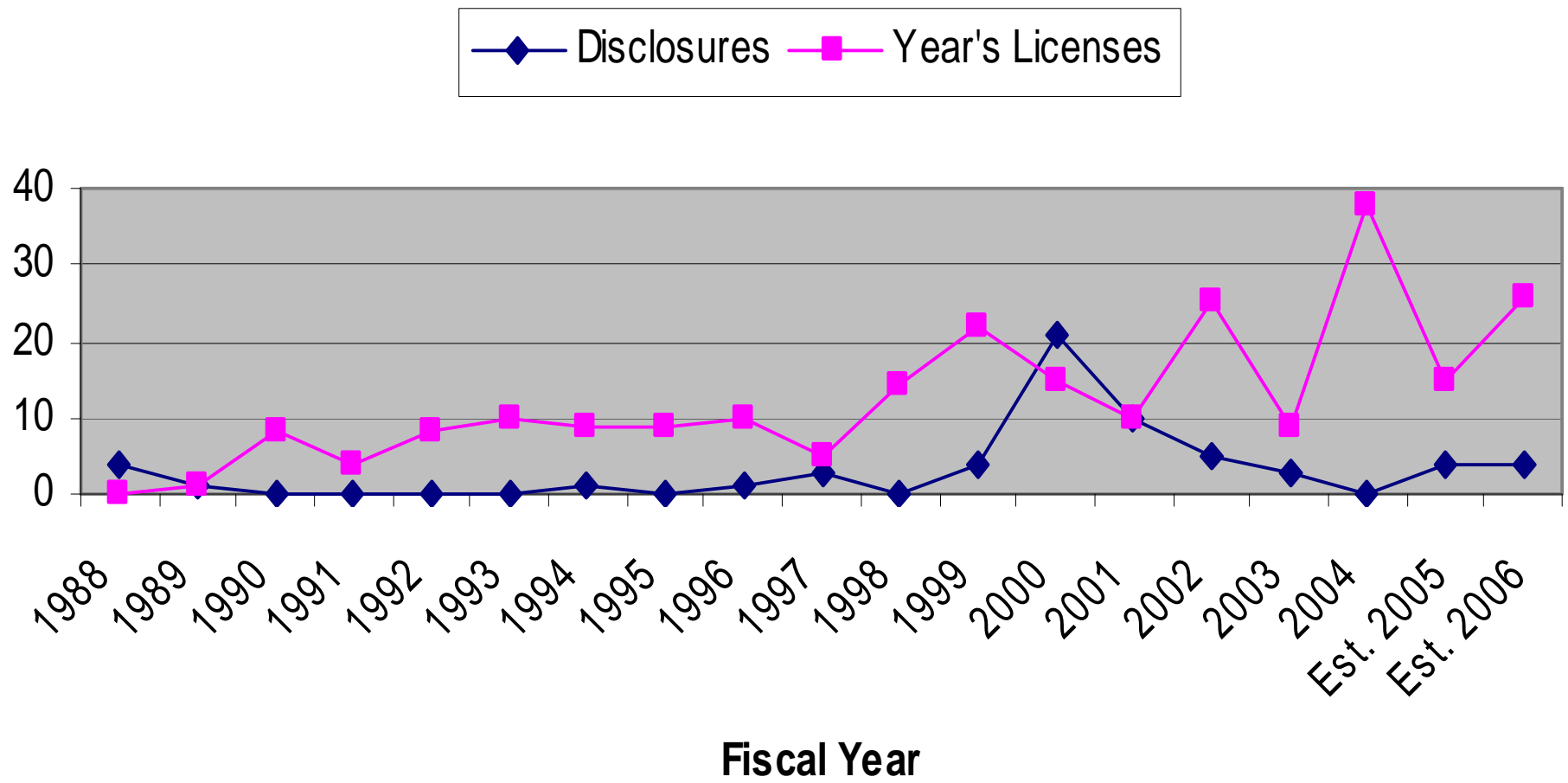
- **Communication**
- **Access**
- **Preparing for the Future**
 - **Regents Policy on Intellectual Property**
 - **Germplasm Release Policy**
 - **Release Procedures for Horticulture Cultivars and Germplasm**
 - **Release Procedures for Field Crop Varieties**

Plant License Task Force

- **Additional Information on Plant Disclosures, Licenses and Royalties**
- **Background on MN 1914**
- **Case Study on a horticulture variety development and release**
- **Case Study on an Agronomic variety release**
- **Cost of Horticulture and Agronomy Breeding Programs**

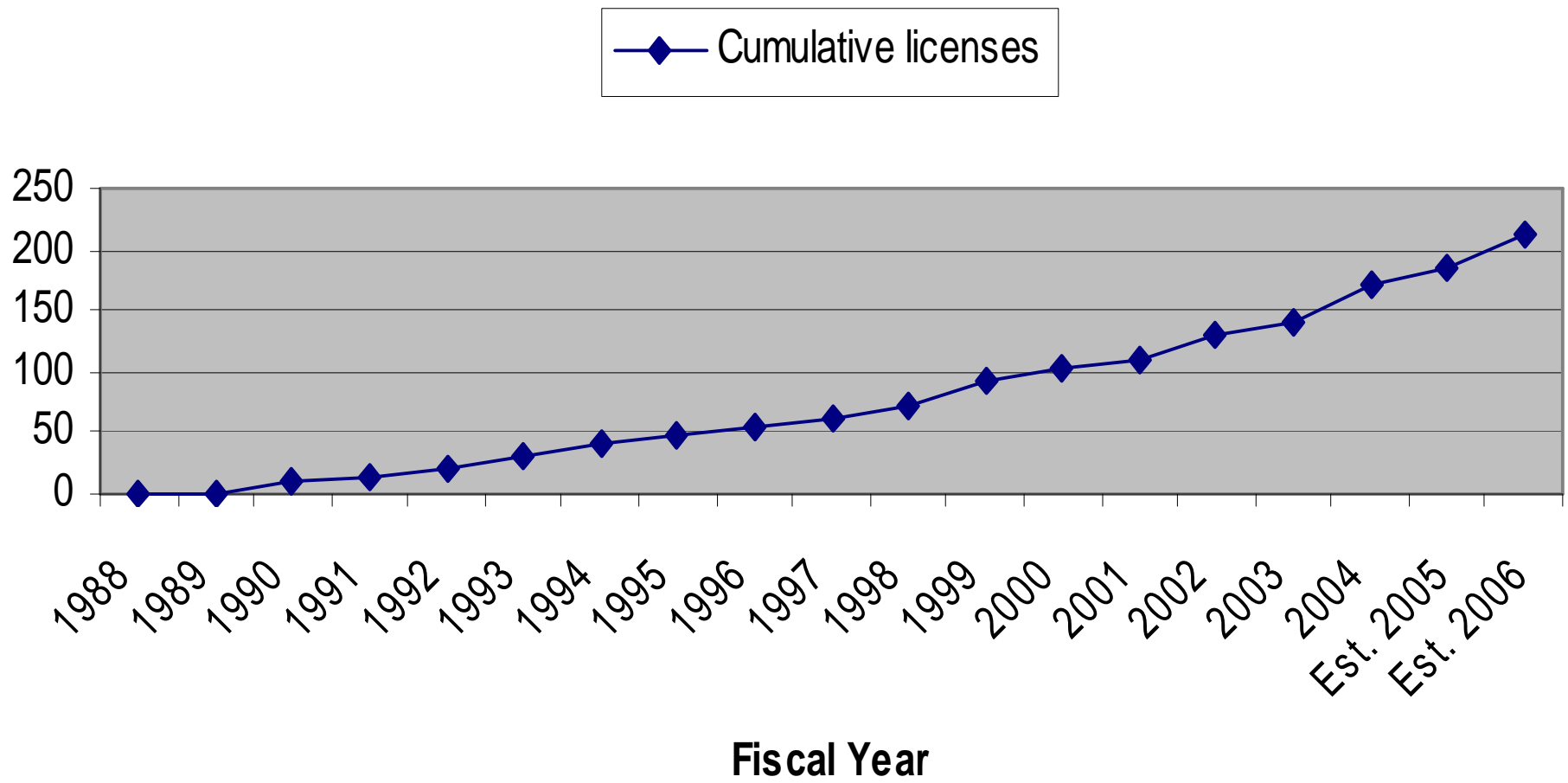
Horticulture

Hort Disclosures and Yearly Licenses



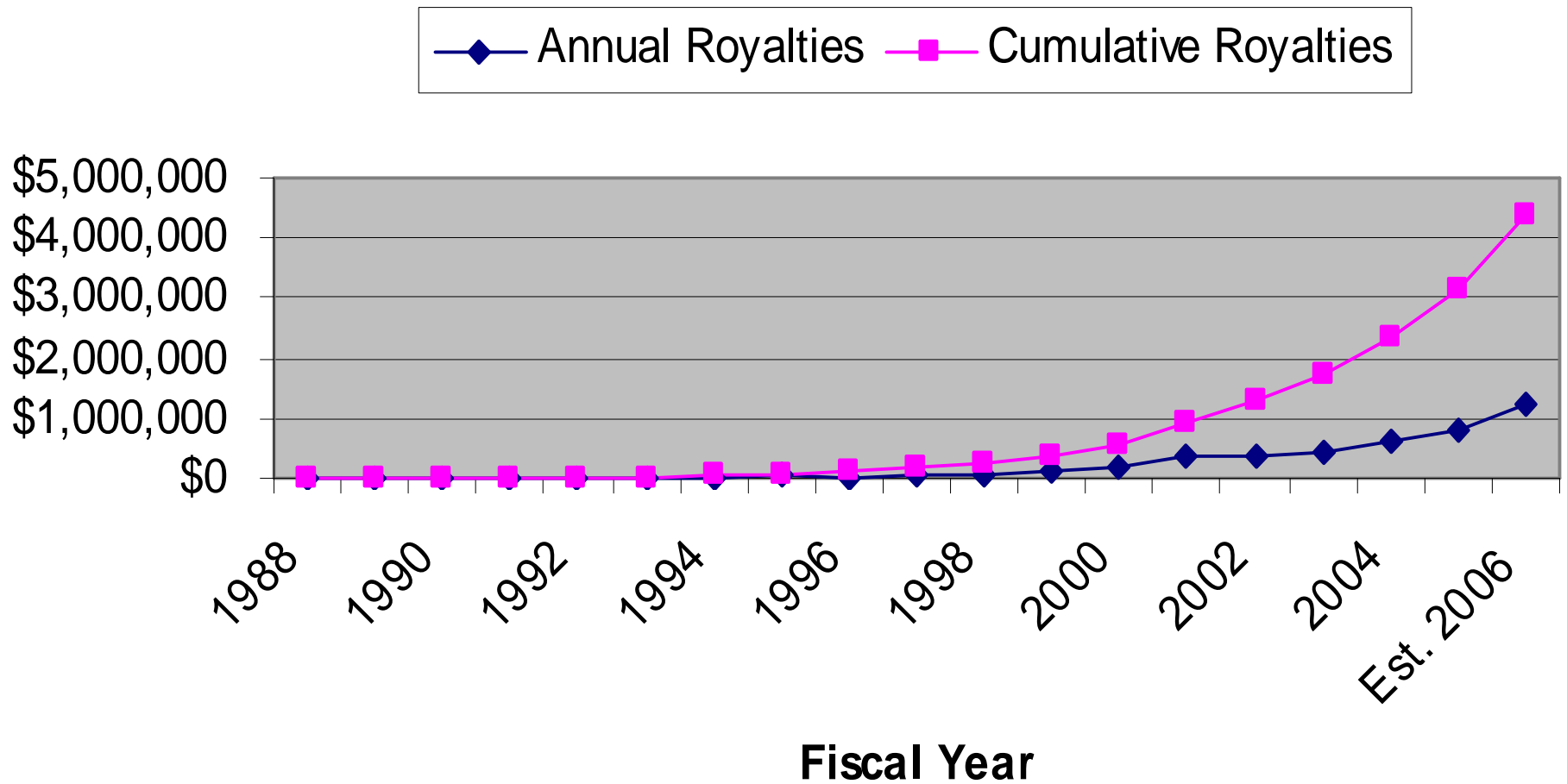
Horticulture

Hort Cumulative licenses



Horticulture

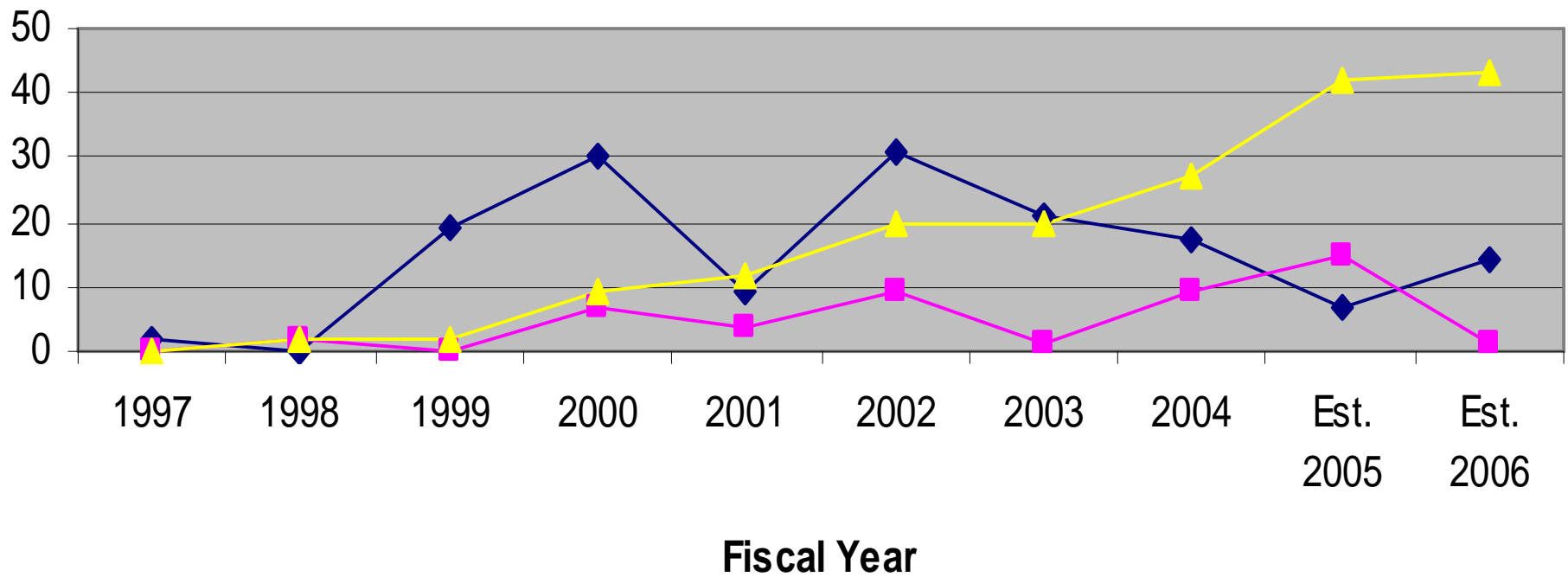
Hort Royalties



Agronomy

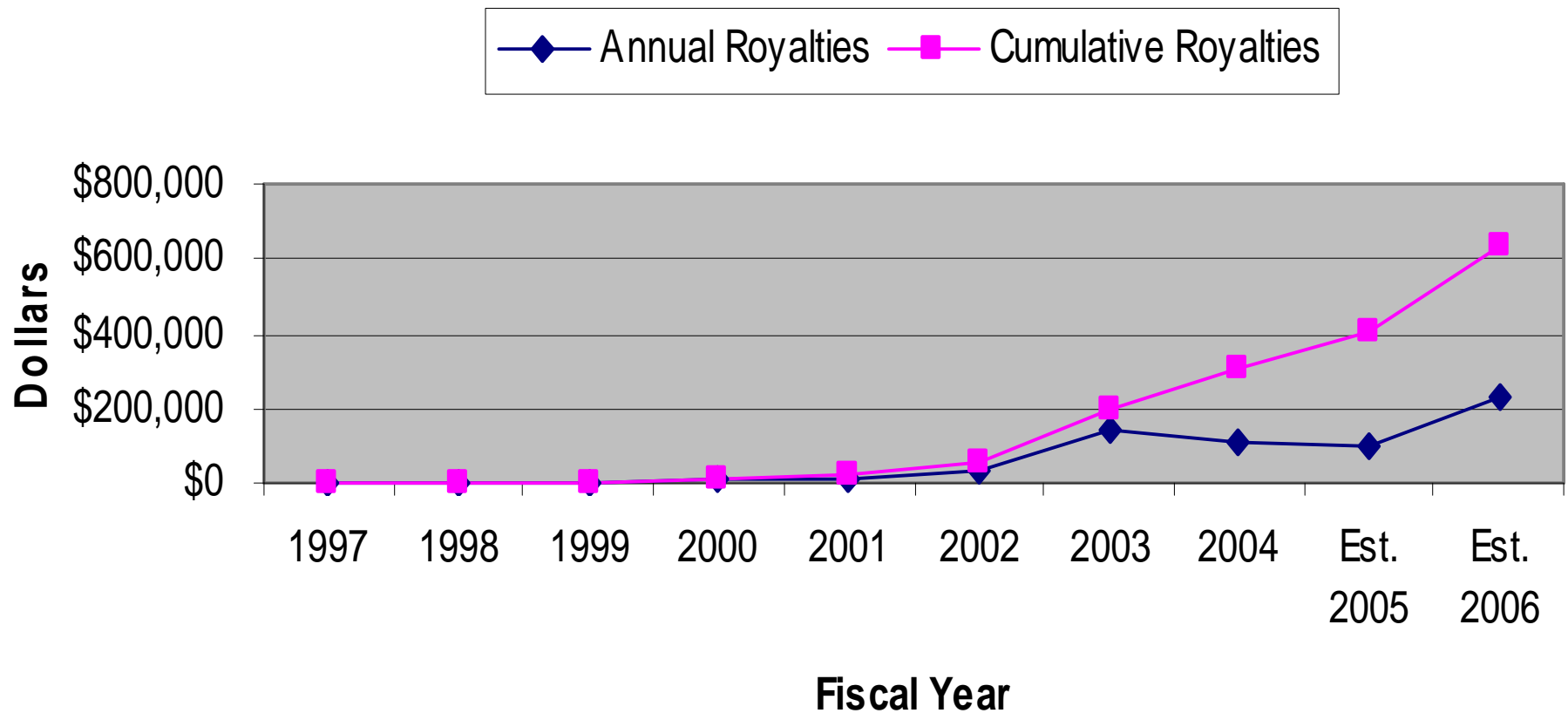
Agronomy Inventions and Licenses

◆ Disclosures ■ Year's Licenses ▲ Cumulative licenses



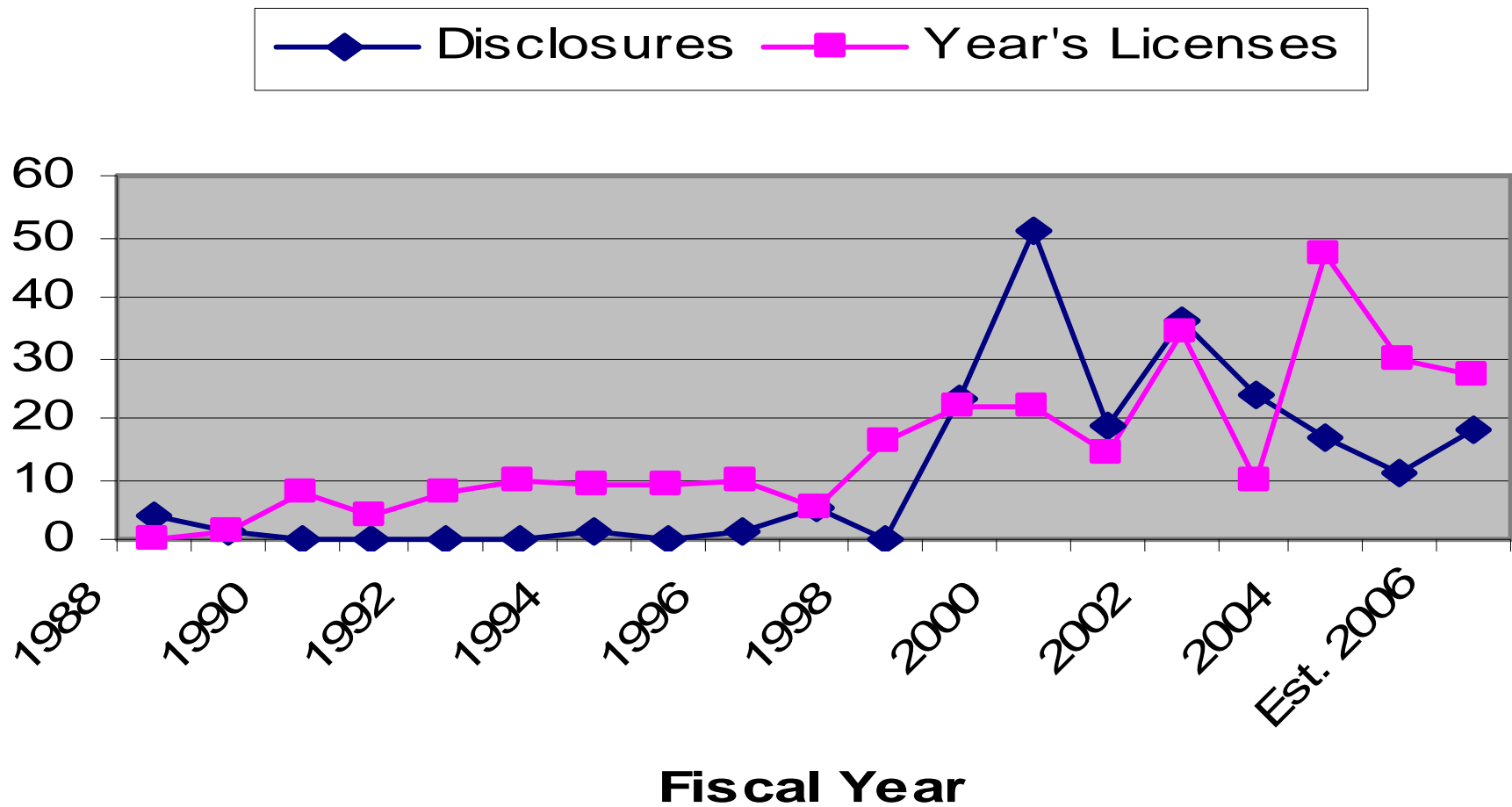
Agronomy

Agronomy Royalties



TOTAL Plant Disclosures and Licenses

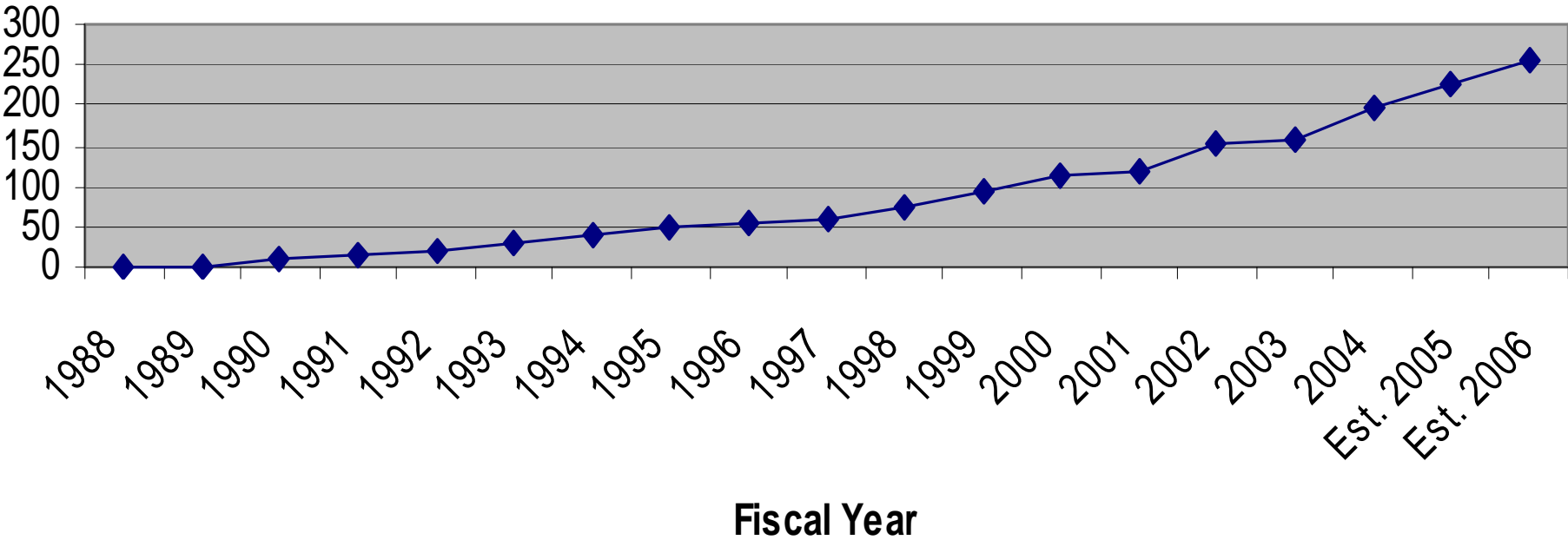
Plant Disclosures and Yearly Licenses



Cumulative Plant Licenses

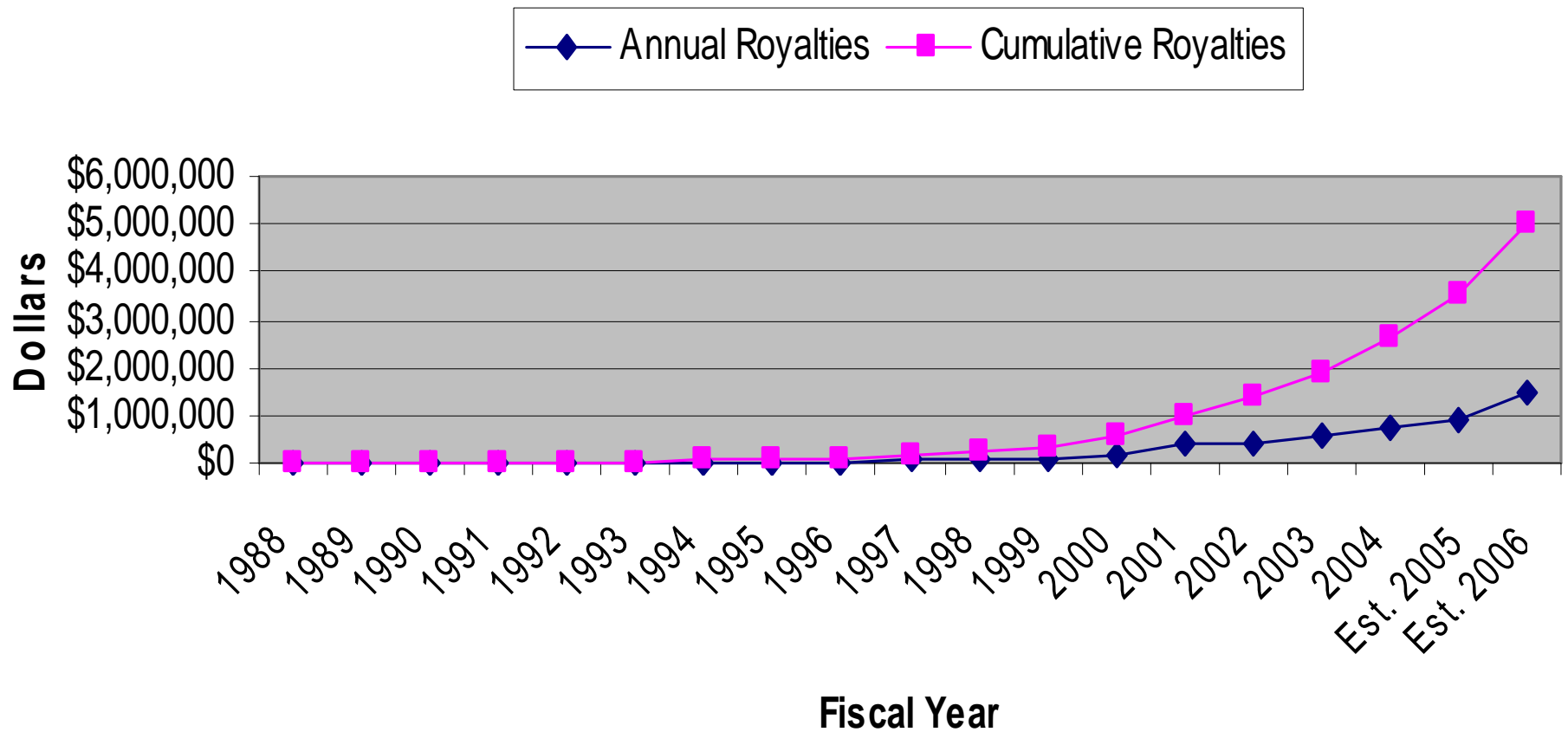
Cumulative plant licenses (not including individual Orchard Agreements)

—◆— Cumulative licenses



Variety Royalties

Variety Royalties



Background on Licensing MN 1914

- Handout
- On the website
- <http://www.apples.umn.edu/>



Case Study of Horticulture and Agronomy Variety Release

- **“UM 1914” Apple**
- **“MN00261-4” Hard Red Spring Wheat**

History of “MN 1914” Apple

- **1999 – The original tree selected from a Honeycrisp x Zestar!TM cross at the University’s Horticultural Research Center.**
- **2000 – The University (David Bedford) announced the discovery of MN 1914 to the MAGA membership in January at the annual meeting (as part of a summary of the breeding program).**
- **2000 – MN1914 was propagated at the University to increase the stock and at one test site with a Minnesota grower to get feedback on geographic adaptation in Minnesota.**

History of MN 1914

- **2001 – The University sent budwood to Prosser, WA for virus indexing.**
- **2003 – The University began a testing program through agreements with 10 parties including two Minnesota testers. The purpose was to get commercial feedback about the variety's quality and geographic adaptation.**
- **2004 – The University expanded the testing program with an additional 14 cooperators again with the main purpose of getting commercial feedback from a wide geographic range.**

History of MN 1914

- **2004 – Late in the year, two Minnesota cooperators independently came to the University with unsolicited proposals to exclusively license MN1914.**
-
- **2005 – The Horticultural Plant Release Committee of the Minnesota Agricultural Experiment Station recommended the release of MN1914 through exclusive licensing on February 22, 2005.**
- **2005 – The University evaluated the two license proposals in detail. The financial and other terms of the proposals were quite similar. The University selected Pepin Heights to begin negotiation of a license.**

Cost of U of MN Apple Breeding Program

Salary and Fringe <i>Breeder (10%)</i> <i>Research Associate (95%)</i> <i>Students</i> <i>Plot Coordinator</i> <i>Res. Plot Tech</i>	\$200,000/year <i>(does not include graduate students)</i>
Supplies/Travel	\$20,000/year
HRC	\$45,000/year
TOTAL Direct Cost	\$265,000/year
TOTAL Indirect (21%)	\$ 54,000/year
TOTAL	\$319,000/year

Cost of U of MN 1914 Apple Breeding Program

1999 – First Selection of MN 1914 (20%)	\$60,000
2000 – 2006 (7 yrs @\$60,000/yr)	\$420,000
TOTAL	\$480,000
Other Costs:	
Graduate Students	
PTM	

U of M Apple Breeding Program

- Since the “discovery” of MN
1914:
 - **Total Costs - \$2.2 M**

“MN00261-4” Hard Red Spring Wheat

-Pedigree: MN95286/MN94155//VERDE

- 1997: Cross was made and F1 generation grown in U of M greenhouses in St. Paul, MN.

-1998: F2 space-plant population; U of M research land; segregating for maturity, plant height, and disease resistance, leaf and stem rust resistant plants selected; F3 single seed descent generation advance in New Zealand winter nursery.

“MN00261-4” Hard Red Spring Wheat

1999: F4 head row (F3-derived); U of M research land; selected based on appropriate plant height, maturity, and leaf and stem rust resistance.

2000: F5 seed increase (from a single spike from the F4 row) grown in Arizona during the winter.

2000: F6 Preliminary Yield Trial (tested as MN00261); U of M research land; selected based on appropriate plant height, maturity, field resistance to leaf and stem rust, Fusarium head blight resistance, grain protein content, test weight, grain yield, milling and baking quality.

“MN00261-4” Hard Red Spring Wheat

2001: F7 Advanced Yield Trial (3 locations), U of M research land; selected based on appropriate plant height, maturity, field resistance to leaf and stem rust, Fusarium head blight resistance, grain protein content, test weight, grain yield, milling and baking quality; no segregation noted. Nine random heads harvested and planted in New Zealand.

2002: Advanced Yield Trial (3 locations), U of M research land; selected based on appropriate plant height, maturity, field resistance to leaf and stem rust, Fusarium head blight resistance, grain protein content, test weight, grain yield, milling and baking quality. One random head selection was harvested in New Zealand and designated as MN00261-4. MN00261-4 was increased in St. Paul and 200 random heads selected for purification in 2003.

2003: Statewide Variety Trial (7 locations, tested as MN00261-4), U of M research land, selected based on appropriate plant height, maturity, field resistance to leaf and stem rust, Fusarium head blight resistance, grain protein content, test weight, grain yield, milling and baking quality. 160 head selections were grown in St. Paul and 157 selected and combined in bulk.

“MN00261-4” Hard Red Spring Wheat

2004: Statewide Variety Trial (7 locations), U of M, Uniform Regional Performance Nursery; U of M on-farm trials (5 locations); selected based on appropriate plant height, maturity, field resistance to leaf and stem rust, Fusarium head blight resistance, grain protein content, test weight, grain yield, milling and baking quality. An increase of MN00261-4 was planted on .33 A in St. Paul. 950 pounds of seed was produced.

2005: Statewide Variety Trial (7 locations), U of M research land; Uniform Regional Performance Nursery; U of MN on-farm trials (3 locations); selected based on appropriate plant height, maturity, field resistance to leaf and stem rust, Fusarium head blight resistance, grain protein content, test weight, grain yield, milling and baking quality. U of M Intellectual Property Disclosure form submitted April 15, 2005. Increase on 10 acres arranged by the Minnesota Crop Improvement Association (Friederichs farm near Foxhome, MN). 590 bushels of seed was produced.

Cost of U of MN Hard Spring Wheat Breeding Program

Salary and Fringe <i>Breeder (80%)</i> <i>Res. Plot Tech</i> <i>Plot Coordinators (ROCs)</i> <i>Students</i>	\$285,000/year <i>(does not include graduate students)</i>
Supplies/Travel	\$40,000/year
ROCs	\$50,000/year
TOTAL Direct Cost	\$375,000/year
TOTAL Indirect (21%)	\$ 78,750/year
TOTAL	\$453,750/year

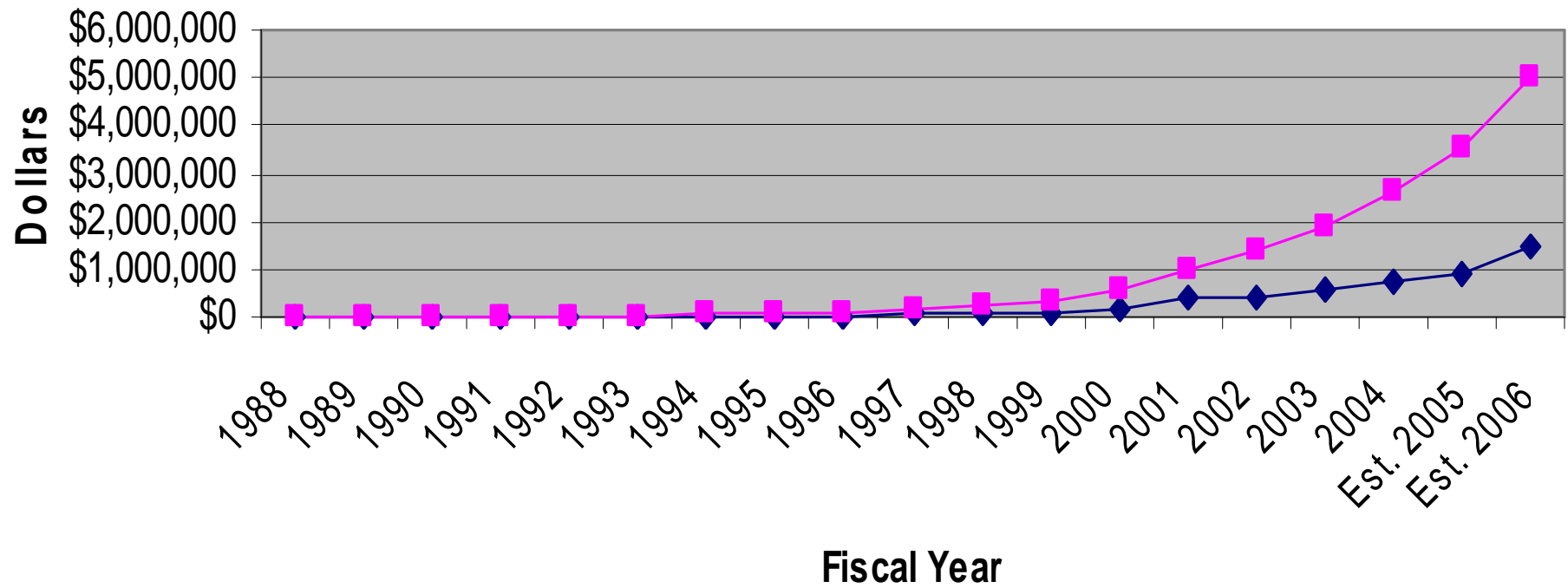
U of M Hard Red Spring Wheat Breeding Program

- Since the “discovery” of “MN00261-4”
Hard Red Spring Wheat
 - **Total Costs - \$3.1 M**

Variety Royalties

Variety Royalties

◆ Annual Royalties ■ Cumulative Royalties



Plant Variety Release at Other Land Grant Universities

- **Gary Beil – Executive Director of Minnesota Crop Improvement Association**