National Agricultural Statistics Service

Hawaii Agricultural Statistics
Hawaii Department of Agriculture

Hawaii Seed Crops

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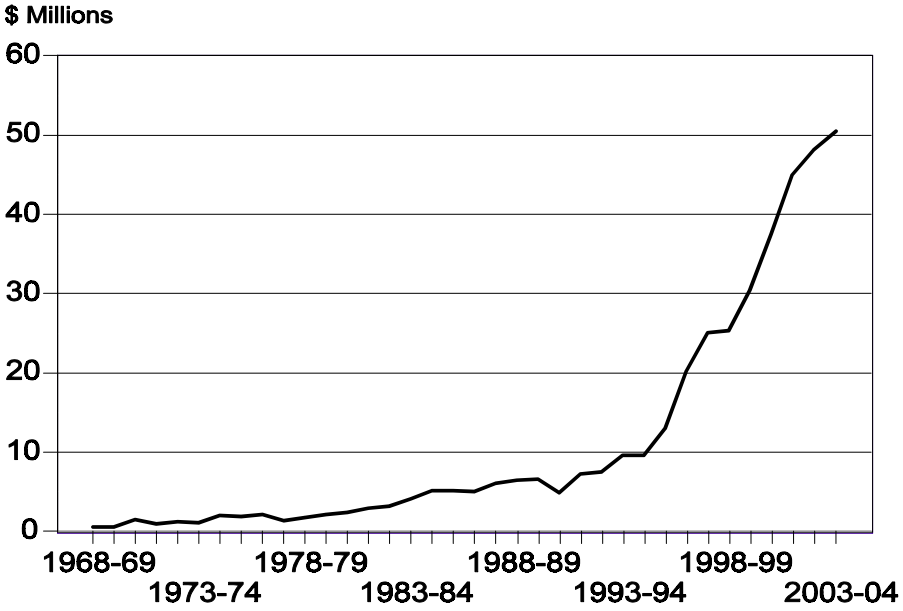
Seed industry value tops $50 million

The Hawaii Agricultural Statistics estimates the value of Hawaii's seed industry at a record high $50.5 million for the 2003/04 season, up 5 percent from 2002/03. Over the last 10 seasons, the value of Hawaii's seed industry has grown at an average annual rate of 20 percent. The seed industry's value is based on reported gross operational budgets since the majority of the seeds produced by companies are not sold. Instead, most seeds are a product of ongoing research or will be further propagated before sale.

Outshipments of seed are expected to total a record high 6.4 million pounds during the 2003/04 season, up 10 percent from the previous season. Corn seeds account for over 98 percent of all seeds shipped out-of-state.

Total acreage used by the seed industry is also expected to reach a new record high at 4,080 acres, up 5 percent from the previous record set last season. ■

Value of Seed Crops
State of Hawaii, 1968/69 - 2003/04



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SEED CROPS

Number of farms, acreage, outshipments, and value
State of Hawaii, 1967/68-2003/04

Crop year [1]	Farms	Acreage by use				Total outshipments of seed	Value [2]		
		Total	Nursery	Seed increase	Grow-out or observation		Total	Seed corn	Other seed crops
		Acres				1,000 pounds	1,000 dollars		
1967-68	2	170	65	-	105	80	-	-	-
1968-69	5	405	80	25	300	130	450	450	-
1969-70	5	460	110	30	350	220	640	640	-
1970-71	6	1,835	125	50	1,730	1,140	1,483	1,483	-
1971-72	5	480	175	30	275	269	976	976	-
1972-73	5	530	200	70	260	300	1,195	1,195	-
1973-74	4	440	220	80	200	340	1,156	1,156	-
1974-75	5	1,250	210	90	290	1,165	2,032	2,032	-
1975-76	4	530	265	110	205	405	1,905	1,905	-
1976-77	4	600	285	65	310	515	2,185	2,185	-
1977-78	6	460	235	75	180	340	1,389	1,389	-
1978-79	6	480	240	90	190	270	1,740	1,740	-
1979-80	5	510	250	100	160	290	2,100	2,100	-
1980-81	5	550	280	120	170	350	2,410	2,410	-
1981-82	5	600	250	135	215	280	2,990	2,990	-
1982-83	5	660	280	165	215	250	3,275	3,275	-
1983-84	6	730	340	90	300	560	4,170	4,170	-
1984-85	7	870	395	145	330	500	5,150	5,150	-
1985-86	7	840	430	160	250	620	5,170	5,170	-
1986-87	7	800	420	125	255	535	5,070	5,070	-
1987-88	7	970	455	80	435	810	6,060	6,060	-
1988-89	7	1,080	470	75	535	1,060	6,440	6,440	-
1989-90	8	900	490	100	310	500	6,660	6,660	-
1990-91	8	850	480	120	250	1,020	4,850	4,850	-
1991-92	7	925	505	105	315	1,315	7,319	6,961	358
1992-93	7	970	485	90	395	1,100	7,500	6,975	525
1993-94	7	1,230	490	660	80	1,850	9,600	9,100	500
1994-95	7	1,400	640	670	590	3,200	9,640	9,190	450
1995-96	6	1,600	630	910	60	2,025	13,000	12,475	525
1996-97	6	1,780	625	1,060	95	3,160	20,250	19,030	1,220
1997-98	8	2,960	1,040	1,830	90	4,050	25,150	24,684	466
1998-99	8	3,070	1,120	1,870	80	5,000	25,300	24,620	680
1999-00	8	2,450	1,045	1,300	105	3,500	30,500	28,700	1,800
2000-01	7	2,900	655	2,130	115	4,800	37,500	36,400	1,100
2001-02	7	3,100	730	2,240	130	5,600	45,000	43,900	1,100
2002-03 [3]	7	3,900	1,210	2,580	110	5,850	48,145	47,060	1,085
2003-04 [4]	7	4,080	1,385	2,700	115	6,420	50,470	49,235	1,235

[1] Seed crops are grown year-round in Hawaii with the main season from November to June.
[2] Value is based on sales or gross operational budgets.
[3] Revised.
[4] Preliminary.

Hawaii's Seed Industry

The next time you're driving around Kauai, Oahu, Maui, or Molokai and see a field of corn, chances are you won't be able to buy any of it. That's because approximately 85 percent of all corn fields in Hawaii are grown strictly for their seed which will eventually be shipped out-of-state. In 2002, Hawaii farmers harvested a record 610 acres of sweet corn for fresh consumption. By comparison, Hawaii's seed companies harvested over 3,400 acres of corn during the 2002/03 season.

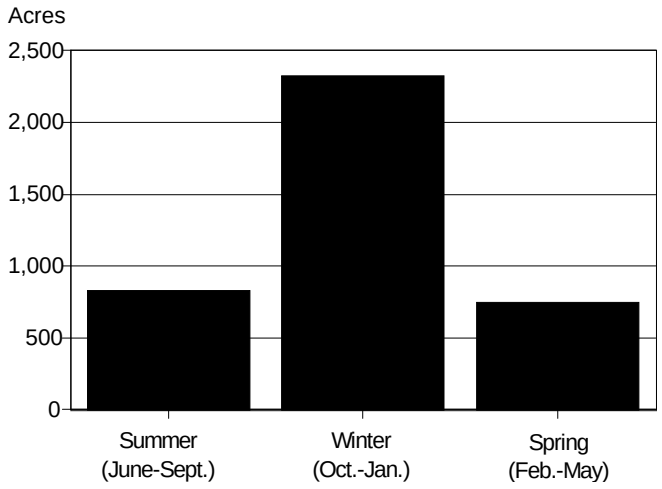
Most of our seed operations are associated with parent companies headquartered on the U.S. mainland while a few others do independent contract work. Hawaii's abundant sunshine and moderate temperatures provide these companies with a year-round growing environment. This capability allows Hawaii-based companies to grow multiple generations or to sustain research done in other areas of the country. Not surprisingly, seed companies are busiest during the our winter season (October-January) when much of the seed-growing U.S. mainland is under snow or experiencing less-than-ideal temperatures.

Seed research and production efforts in Hawaii are geared for crops grown widely on the U.S. mainland. As a result, corn accounts for over 95 percent of all the seed acreage. The remaining 5 percent is devoted to such crops as soybeans, cotton, sunflower, wheat, and a few others.

A recent special survey of Hawaii seed companies also indicated that the industry is also poised for future growth. By the 2007/08 season, Hawaii's seed companies intended to expand plantings by 25 percent to over 4,800 acres, augment its workforce by over 10 percent, and increase total expenditures to $65 million. ■

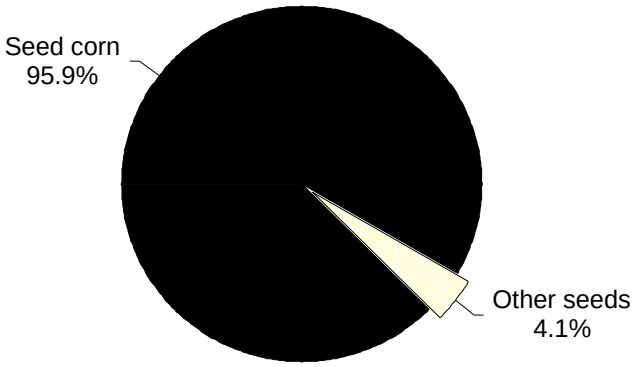
Winter is busiest

Seed Acreage Planted By Season
State of Hawaii, 2002/03 season



Seed corn dominates

Seed Acreage Planted By Seed Type
State of Hawaii, 2002/03 season



Economic contributions

2002-03 Season

Total expenditures $51,500,000

Total number of employees 945
- Full-time employees 262
- Part-time employees 683

Number of visiting professionals 495
- Average length of stay in Hawaii ..... 9 days
- Average daily spending in Hawaii $175

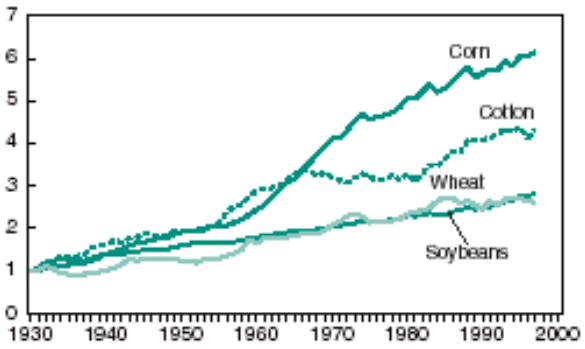
Seed Industry in U.S. Agriculture

Improved seed is a major contributor to crop yield gains

Over the past 70 years, yields of all major field crops in the United States registered a remarkable increase. For example, average corn yields rose from 20 bushels per acre in 1930 to 140 bushels per acre by the mid-1990s. Over the same period, cotton yields rose nearly fourfold, soybean yields increased more than three fold, and wheat yields climbed more than 2.5-fold. More than half of the yield gains are attributed to genetic improvements achieved by plant breeders.

Yields for major crops

Yield index (1930=1.00) smoothed



Source: *Agricultural Statistics*, NASS, USDA, various years.

Seed market size and value

The U.S. seed market is rapidly growing in size and value. U.S. farmers used over 6.5 million tons of seed for major field crops in the 1996/97 crop marketing year. In 1997, the estimated value of the commercial U.S. seed market was $5.7 billion, roughly 20 percent of the world market in seed. The U.S. seed market is the largest seed market worldwide. China, at $3.0 billion, and Japan, at $2.5 billion, are the next largest seed markets.

Total seed expenditures by U.S. farmers rose from about $500 million in 1960 to over $6.7 billion in 1997. In real terms, seed expenditures climbed about 2.5-fold in the same period, despite minimal real increases in the index of seed prices paid by farmers. Similarly, when measured as a share of total farm expenditures, seed expenditures increased from 2 percent in 1970 to 4 percent in 1997.

A large portion of the increase in real seed expenditures may be explained by increases in the share of seed purchased by U.S. farmers from seed, particularly for major field crops, which account for the largest share of seed purchased. In 1997, 81 percent of all U.S. soybean acreage (up from 55 percent in 1982) and 78 percent of all U.S. cotton acreage (up from 50 percent in 1982) were cultivated with purchased seed. These increases, in turn, can be explained by increases in seed productivity attributable to scientific improvements in plant breeding. Seeding rates have also increased. ■

Excerpt from *The Seed Industry in U.S. Agriculture*, Economic Research Service, USDA, January 2004.