Table 3: Three-year grain-yield (bu / a) summary (1996-98) for selected varieties grown in the Kansas IntraState Nursery average across central and western KS locations.

Central Kansas Locations				
	1998	1997	1996	Ave
Heyne	55	64	46	55
Betty	51	56	52	53
Jagger	53	61	49	54
2137	55	61	59	58
Karl 92	53	53	52	53

Western Kansas Locations				
	1998	1997	1996	Ave
Heyne	66	53	36	52
Betty	65	55	44	55
Jagger	72	56	33	54
2137	70	56	56	61

Table 4: Test weight (lbs / bu) patterns for selected varieties grown in the Kansas Variety Performance (VPT) and Kansas IntraState Nursery (KIN) in 1997 and 1998.

	VPT	KIN	Ave
Heyne	59.5	60.5	60.0
Betty	59.0	59.0	59.0
2137	59.0	59.0	59.0
Jagger	59.0	60.0	59.5
Karl 92	59.0	60.0	59.5

Rollin G. Sears
Wheat Breeder
Department of Agronomy

T. Joe Martin
Wheat Breeder
KSU Agricultural Research Center–Hays

James P. Shroyer
Extension Specialist
Crop Production

Kansas State University
Agricultural Experiment Station
and Cooperative Extension Service

L-918 May 1999

File code: Crops and Soils 1-1

Heyne Hard White Wheat

Heyne is a new, hard white winter wheat variety developed cooperatively by the Kansas Agricultural Experiment Station and the Agriculture Research Service, United States Department of Agriculture. Heyne is named after the late Dr. Elmer G. Heyne, wheat breeder at Kansas State University for more than 40 years, recognizing the many contributions he made to Kansas Agriculture. Foundation seed of Heyne was distributed to registered seed growers in the fall of 1998. Foundation seed[1] and registered seed will be available for fall planting in 1999.

Origin & Development. Heyne was selected from an F_5 head row and evaluated as KS85W663-42. The pedigree of Heyne is KS82W422 / SWM754308 / / KS831182 / KS82W422, all breeding lines within the Kansas State wheat program. Heyne was tested in the 1996-98 Kansas IntraState Nursery, the 1996-97 Southern Regional Performance Nursery and the 1998 Kansas Variety Performance Test.

[1]In 1999 Foundation seed will only be distributed to category 1 & 2 growers within the Kansas Crop Improvement Association

Kansas State University Agricultural Experiment Station and Cooperative Extension Service

Agronomic Characteristics. Heyne is an awned, bronze chaffed, semidawrf, hard white wheat. It has a medium maturity, similar to 2137, and excellent disease resistance. It was one of the few selections that has maintained its leaf rust resistance in the southern Great Plains during the past 3 years. Heyne is best adapted to south central Kansas where it has aluminum tolerance, good grazing characteristics, and excellent disease resistance. Its yields have been most consistent and comparable with either 2137 or Jagger in this region. Winterhardiness of Heyne is only fair, comparable with Jagger. It has fall and spring growth patterns that are very similar to Jagger. The adaptation zone of Heyne from south to north should probably not extend north of Interstate 70. Heyne has good straw strength, similar to Karl 92, but not as strong as either 2137 or Jagger. Heyne has good tolerance to aluminum toxicity caused by low soil pH. It has an intermediate coleoptile length, similar to Newton so it should not be planted deeper than 2 to 3 inches.

Resistance to pests. Heyne has good resistance to leaf rust, stem rust, soil borne mosaic virus, and spindle streak mosaic virus. Heyne has good levels of tolerance to wheat streak mosaic virus, speckled leaf blotch, glume blotch, tan spot, powdery mildew and Fusarium head scab. Heyne is the first hard wheat released by K-State with improved protection against scab. Heyne is susceptible to barley yellow dwarf and Hessian fly. Overall, Heyne has outstanding general pest protection.

Area of adaptation. Heyne is best adapted to south-central and central Kansas because of its outstanding general pest protection. Generally, Heyne has been lower yielding in western Kansas tests. Heyne is not recommended for eastern Kansas because its level of pre-harvest sprouting tolerance is not adequate to allow safe production.

Milling and baking properties. Heyne has good milling properties and excellent baking properties, similar to Jagger and Karl 92. Heyne has high protein concentration and medium strong mixing time and tolerance ratings. Heyne does not appear to have acceptable noodle-making characteristics and should be considered a bread wheat variety.

Performance data. Heyne has been tested extensively the past 3 years in the KIN, SRPN and VPT. Table 1 summarizes Heyne's agronomic and pest characteristics. Table 2 and 3 summarize grain yield data and Table 4 summarizes test weight data. Heyne has performed best in central Kansas tests where it has good protection against the many wheat pests that occur in this region. In this region, Heyne has outperformed both 2137 and Jagger in 1997 and 1998. In 1996 tests Heyne was damaged by severe spring freezes, similar to the damage observed in Jagger that year. Heyne has good test weight patterns, similar to Karl 92.

Table 2: Average yields (bu / a) for selected varieties in the 1997-98 Kansas VPT

	1997	1998	Ave.
Heyne	—	65.7	—
Betty	67.7	60.7	62.3
2137	69.5	68.5	69.0
Jagger	65.5	69.5	67.5
Karl 92	58.0	65.5	61.7

Table 1: Agronomic & pest resistance characteristics for Heyne and other currently popular varieties.

	Reaction to pests											Relative agronomic characteristics					
	SBM[2]	SSM[3]	WSM[4]	BYD[5]	Leaf rust	Stem rust	Speckled leaf blotch	Glum blotch	Tan spot	Powdery mildew	Hessian fly	Maturity	Test weight	Winter hardiness	Coleoptile length	Lodging resistance	Shattering resistance
Heyne	1[1]	2	3	7	3	2	4	5	5	4	9	3	4	6	4	3	4
Betty	1	2	6	6	7	6	3	5	3	3	9	3	4	5	5	3	5
Arlin	5	4	7	8	7	2	7	7	7	7	8						
Oro Blanco	1	4	8	7	8	7	7	7	5	7	8						
Karl 92	1	3	9	8	9	6	5	3	3	3	9	1	3	3	5	3	4
Jagger	1	2	4	5	6	3	3	5	3	7	9	1	4	6	4	2	6
2137	1	4	3	5	6	6	3	7	4	4	2	3	4	5	5	2	6
Ike	1	5	9	6	9	3	8	6	7	5	1						

[1]Ratings based on a 1-9 scale where 1 = resistant and 9 = susceptible. Except for Matutity where 0 means earliest and 9 latest.

[2]SBM–Soilborne mosaic

[3]SSM–Spindle streak mosaic

[4]WSM–Wheat streak mosaic

[5]BYD–Barley yellow dwarf