



Griffin Canola

Adapted to Kansas and the Great Plains, Griffin is a canola cultivar with improved winter hardiness. It was tested as the experimental cultivar, KS4022, and was released by K-State Research and Extension in 2011. Griffin is named after John Griffin, a long-time canola producer and certified seed grower in Reno County, Kansas. Foundation seed of Griffin will be available through the Kansas Foundation Seed Service. Certified seed will be available through licensed seed dealers in the region.

Agronomic characteristics

Griffin reaches 50 percent bloom 1.5 days later than Wichita (Rife et al., 2001) and 3 days earlier than Plainsman (Rife et al., 2000). It reaches maturity 3 days later than Wichita and 5 days earlier than Plainsman. Griffin averages 44 inches tall, which is 2 inches taller than Wichita and 3 inches shorter than Plainsman. Griffin averages 37.5 percent total oil on a dry-seed basis and is moderately susceptible to the blackleg fungus (*Leptosphaeria maculans*).

Winter survival

Griffin requires a lengthened vernalization period. Its prostrate growth habit keeps the rosette protected near ground level, improving winter survival. Griffin first drew attention in 2006 when it averaged 96 percent survival and Wichita averaged 7 percent in testing near Manhattan, Kansas. The difference in survival occurred because

Senior Author

Michael Stamm, Kansas State University

Collaborating Scientists

Gary Cramer, Kansas State University
 Scott Dooley, Kansas State University
 Johnathon Holman, Kansas State University
 Charlie Rife, High Plains Crop Development

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Stamm, M., G. Cramer, S.J. Dooley, J. Holman, D. Phillips, C. Rife, and D.K. Santra. 2015. Registration of 'Griffin' winter canola. *J. Plant Reg.* doi:10.3198/jpr2014.05.0037crc.

Griffin's stem did not elongate in the fall, which can be brought on by too much growth as a result of warmer than normal temperatures. Cultivars prone to fall stem elongation have a lower winter survival rate.

Survival of Griffin appears to be more consistent than other cultivars in years when winterkill is observed. Differences in winter survival were observed near Manhattan, Kansas in the National Winter Canola Variety Trial (NWCVT) from 2007 to 2009. Griffin averaged 97 percent survival while Wichita averaged 83 percent (Table 1). Based on this performance, it appears Griffin could be grown in northern Kansas, an area where canola production is restricted because of limitations in survivability of current cultivars. Through 28 site-years of testing in the Great Plains, Griffin averaged 92 percent survival while Wichita averaged 87 percent survival (Table 2). Griffin also showed improved winter survival when grown in the U.S. Midwest and Southeast.

Table 3 summarizes the yield of Griffin and check cultivars in the National Winter Canola Variety Trial across three growing regions. Griffin averaged slightly better yields than Wichita across 38 site-years in the Great Plains. However, yield was less than the hybrid check, Sitro, in the Great Plains, Midwest, and Southeast.

Grazing potential

Simulated grazing studies of Griffin were conducted at Manhattan and Garden City, Kansas from 2008 to 2010. Griffin responded to simulated grazing better than Wichita because of its prostrate growth habit. Griffin showed superior winter survival to Wichita (78 vs. 52 percent, respectively) when simulated grazing was performed following a series of hard freezes in mid-November (Stamm et al, 2015). Although grazing canola generally reduces final grain yield by 50 percent, Griffin's yield was reduced less than Wichita's (61 vs. 37 percent, respectively) when compared to the ungrazed treatment.

Griffin provides a high-protein and nutritious forage. Griffin had greater forage quality than Wichita across three years of simulated grazing studies (Table 4). The protein, total digestible nutrients, and relative feed value of Griffin fall within a desirable range for livestock. The fiber content is low indicating the majority of the aboveground vegetation is highly digestible.

Summary

Improved winter hardiness makes Griffin adapted to much of Kansas and a large portion of the major U.S. winter canola growing regions. Plant characteristics, including a longer vernalization requirement, a prostrate growth habit, and the ability to avoid fall stem elongation, give Griffin advantages over other commercial cultivars. Griffin has shown improved response to simulated grazing compared to Wichita.

Best practices for grazing winter canola.

- » To minimize the risk of nitrate poisoning, blending canola seed at planting with a grass forage crop for grazing is recommended.
- » Grazing canola is not an insurable practice.
- » No more than 75 percent of the ration should be canola. Have a low-nitrate, high-fiber hay available for free-choice feeding, and consider using a bloat preventer.
- » Always sample canola forage for nitrate content before introducing livestock.
- » A slightly earlier planting date is advisable to allow for maximum forage growth.
- » Graze canola after multiple hard freezes (lower than 26 degrees Fahrenheit). Generally, mid-November to late December is the optimum time.
- » Stock canola with younger cattle rather than older cattle. Lighter animals may cause less physical damage to the plants.
- » Cattle must be removed before bolting occurs if harvesting the grain crop.
- » Expect a seed yield reduction of 50 percent after grazing.
- » Griffin's tolerance to grazing is only maintained when using proper grazing management. If Griffin is overgrazed, it behaves like any other canola variety.

Table 1. Winter survival (%) averages for Griffin and check cultivars in the NWCVT at Manhattan, Kansas.

	2007	2008	2009	Average
Griffin	99	94	97	97
Sitro	67	20	87	58
Virginia	72	9	77	53
Wichita	96	72	80	83
Mean*	66	38	79	
LSD (0.05)**	16	26	16	

*Mean equals the average winter survival of all entries for the year, not just the entries in the table.

**Least significant difference. If the difference between the two cultivars is greater than the LSD value for the year, then the results are statistically different.

Table 2. Winter survival (%) averages for check cultivars in the NWCVT grown in different regions, 2007-2009.

	Great Plains	Midwest	Southeast
Griffin	92	95	92
Sitro	77	86	89
Virginia	78	85	94
Wichita	87	89	82
Sites	28	7	8

Table 3. Yield (lb/acre) averages for check cultivars in the NWCVT grown in different regions, 2007-2009.

	Great Plains	Midwest	Southeast
Griffin	1,906	2,125	1,781
Sitro	2,095	2,485	1,938
Virginia	1,769	2,108	1,814
Wichita	1,817	2,124	1,782
Sites	38	17	16

Table 4. Forage quantity and quality measurements from simulated grazing studies near Manhattan, Kansas, 2008-2010.

	Forage Wt (t/a)	Dry Wt (t/a)	Protein (%)	ADF (%)	NDF (%)	NEM (Mcal/lb)	TDN (%)	RFV
Griffin	4.7	1.0	26.1	21.7	24.4	0.83	73.2	286
Wichita	5.2	1.2	25.2	23.4	26.3	0.81	71.2	261