

# **2016 Kansas Pronghorn Harvest Report**

## PERFORMANCE REPORT STATEWIDE WILDLIFE RESEARCH AND SURVEYS

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Prepared by Matt Peek, Research Biologist



**Background** – Pronghorn, often referred to as antelope, mostly exist in the westernmost two to three tiers of counties in Kansas, and mostly South of I-70. There's been a hunting season for pronghorn in western Kansas since 1974. The firearm pronghorn season has been four days long since 1990, starting on the first Friday in October. The archery pronghorn season was nine days long from 1985 to 2004, and encompassed the two weekends prior to the firearm season. Since 2005, the archery season has reopened on the Saturday following the firearms season and continued through the end of October. A muzzleloader only season was initiated in 2001. It has begun immediately after the archery season and ran for four days. Muzzleloader permit holders can also hunt with muzzleloader equipment during the four day firearms season, giving them eight days total.

Archery permits are unlimited due to traditionally low success rates. Firearm and muzzleloader permit demand and success rates require these permits to be limited draw. In recent years, we've had over 1000 applicants for the 200 or so limited draw permits (Figure 1). The total number of applicants fell by about 200 from last year. This was the first year since general resident permit prices were increased from \$40 to \$50 and preference point fees were increased from \$5 to \$10.

Firearm and muzzleloader permits are allocated by preference point system. Applicants with the highest number of preference points are awarded permits. By state law, half of all permits are awarded to landowner/tenants and half are awarded to general residents. Draw statistics from 2016 are found in Appendix 1. Applicants are allowed to buy a preference point without applying for the permit, so preference points higher than necessary to draw sometimes show up in the draw stats. For example, in unit 2 firearms, one individual had 12 preference points, but all applicants with six were able to draw.

**Harvest** – Pronghorn harvest and hunter activities are compiled annually through harvest reports sent to all pronghorn hunters. Paper report cards and postage paid tooth envelopes are initially sent to all hunters. After season, a direct link to a SurveyMonkey® online harvest report is e-mailed to nonrespondents for whom we have an active e-mail address. After a week for the online survey recipients to respond, all nonrespondents are sent a second mailing of the harvest report. Response rate by permit type in 2016 was: archery – 65%; firearms – 89%; and muzzleloader – 93%.

A total of 224 pronghorn were harvested in 2016. Total pronghorn harvest since hunting seasons were initiated in 1974 is provided in Figure 2. The 2016 harvest was the highest in over 20 years.

Since 1986, all permits have been valid for any antelope. In 2016, an estimated 210 bucks and 14 does and fawns were harvested. The sex and age composition of the harvest since 1995 is provided in Figure 3. In recent years, over 90% of the harvest has

consisted of yearling or older bucks. The estimated date of harvest is provided in Figure 4. Very little harvest occurs during the late archery season.

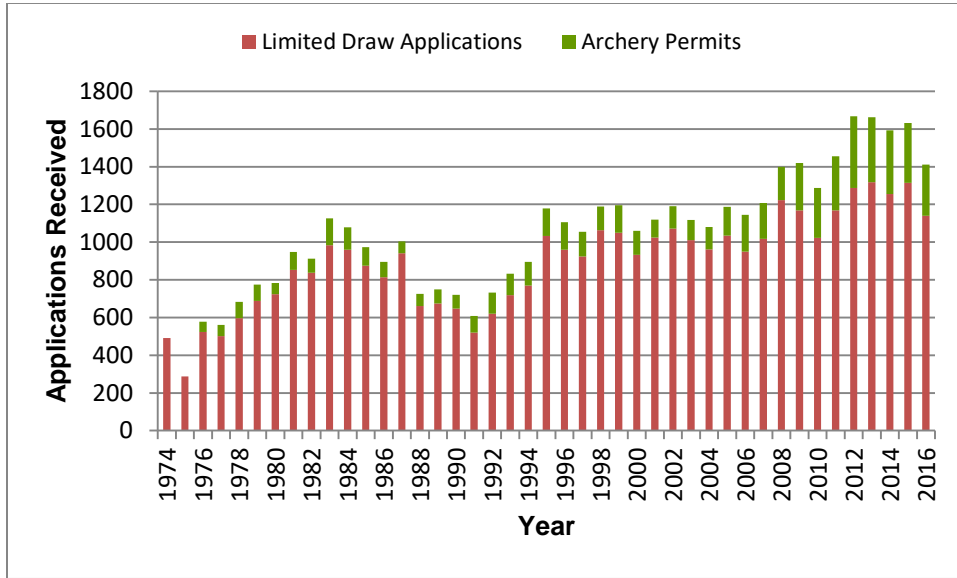


Figure 1. Pronghorn permit demand as indicated by limited draw (firearms and muzzleloader) permit applications and unlimited archery permit sales in Kansas since 1974.

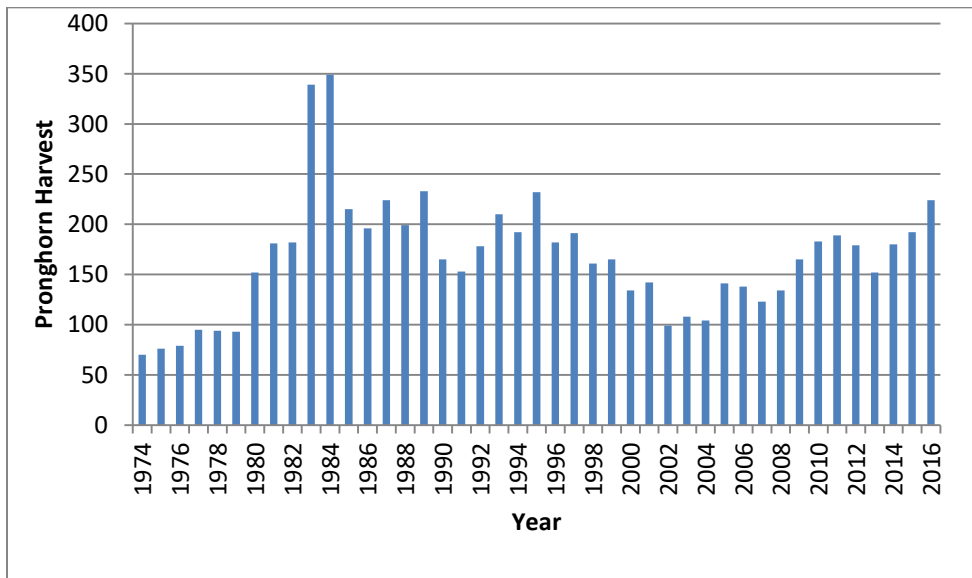


Figure 2. Total pronghorn harvest in Kansas since hunting seasons were initiated in 1974.

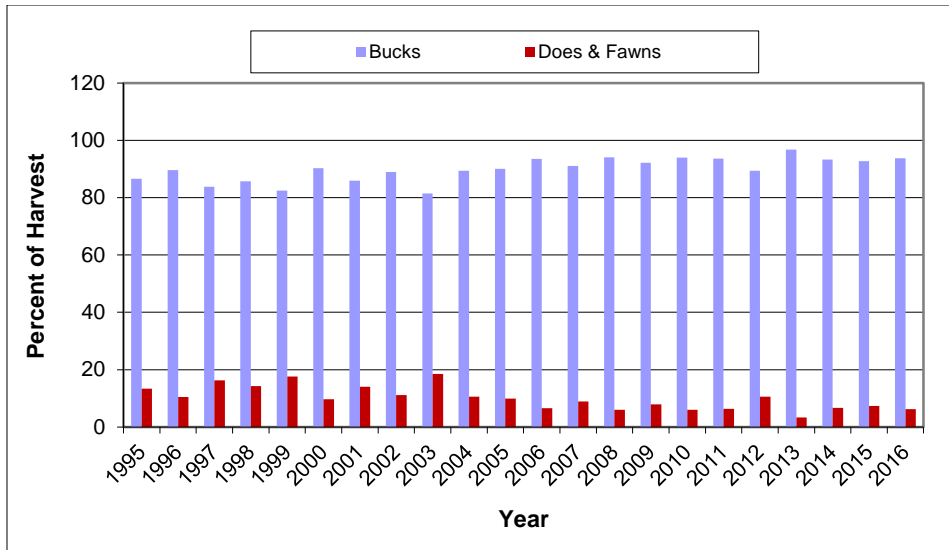


Figure 3. Sex and age composition of annual pronghorn harvest in Kansas from 1995-2016.

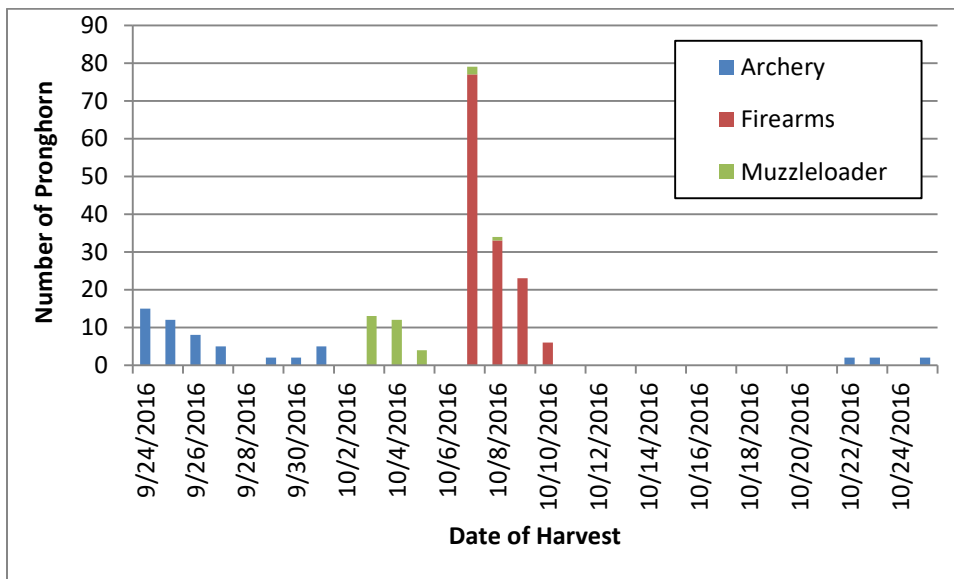


Figure 4. Estimated date of harvest of pronghorn taken during the 2016 season (n=224) and the permit type by which they were taken.

**Harvest by Weapon Type** – The number of pronghorn permits sold by weapon type since 1995 is provided in Figure 5. Most notably, archery permit sales have dropped from 380 to 272 since 2012. Harvest classification by permit type for 2016 Kansas pronghorn hunters is provided in Figure 6. Harvest by permit type since 1995 is provided in Figure 7, and success rate by permit type is found in Figure 8.

Pronghorn hunters are asked to rank their hunt satisfaction on a 7–point scale ranging from extremely dissatisfied to extremely satisfied. This serves as a general indicator of hunt quality likely reflecting harvest success, pronghorn numbers, buck quality, access, and various other factors of the hunt. Mean satisfaction by permit type since 2013 is found in Figure 9, and hunter satisfaction by permit type is found in Figure 10.

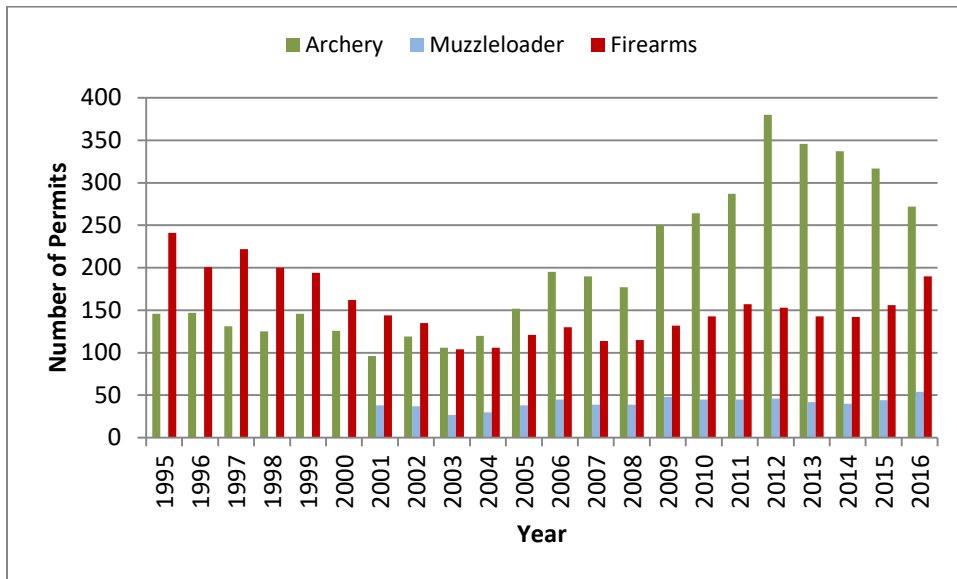


Figure 5. Permits sold by weapon type for pronghorn in Kansas from 1995-2016.

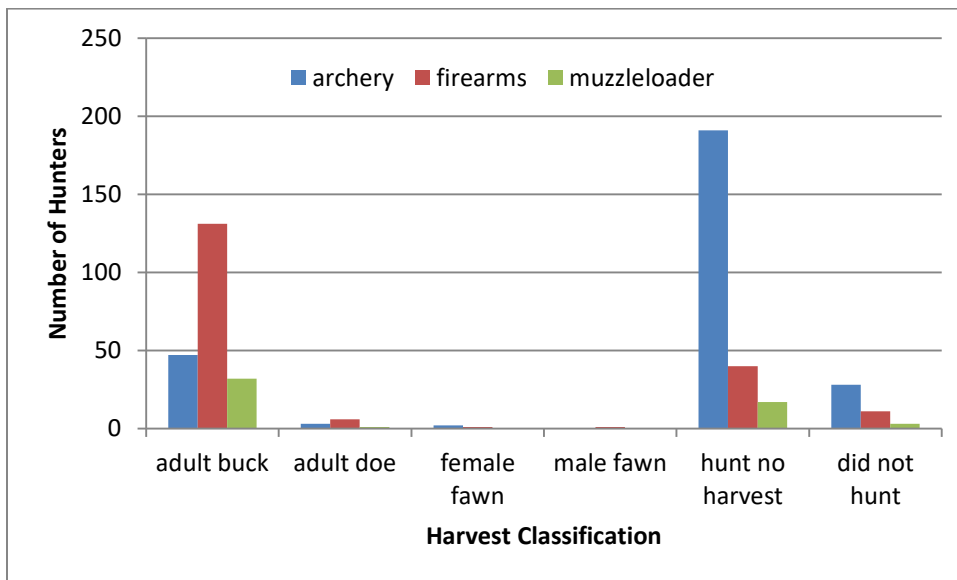


Figure 6. Harvest classification by permit type for 2016 Kansas pronghorn hunters.

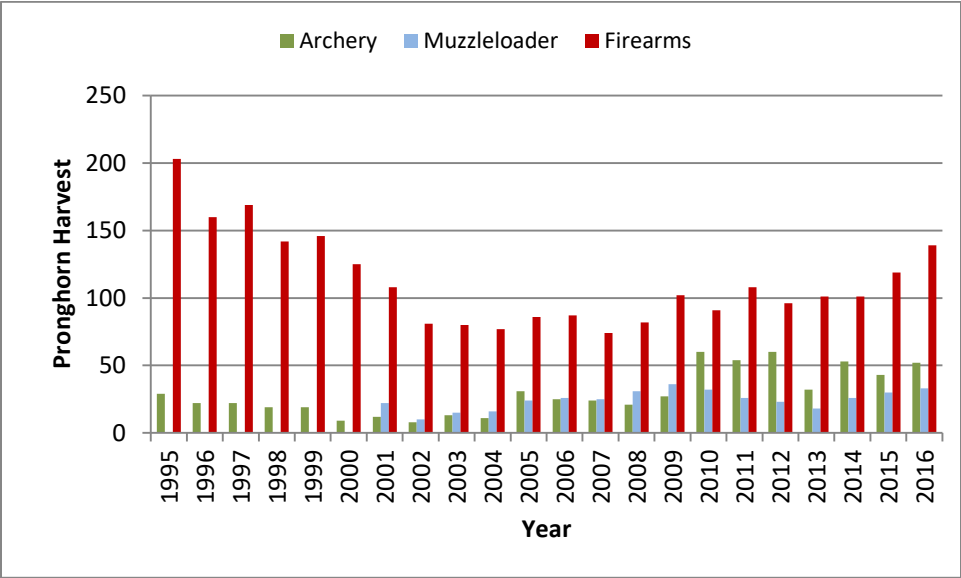


Figure 7. Pronghorn harvest in Kansas by permit type from 1995-2016.

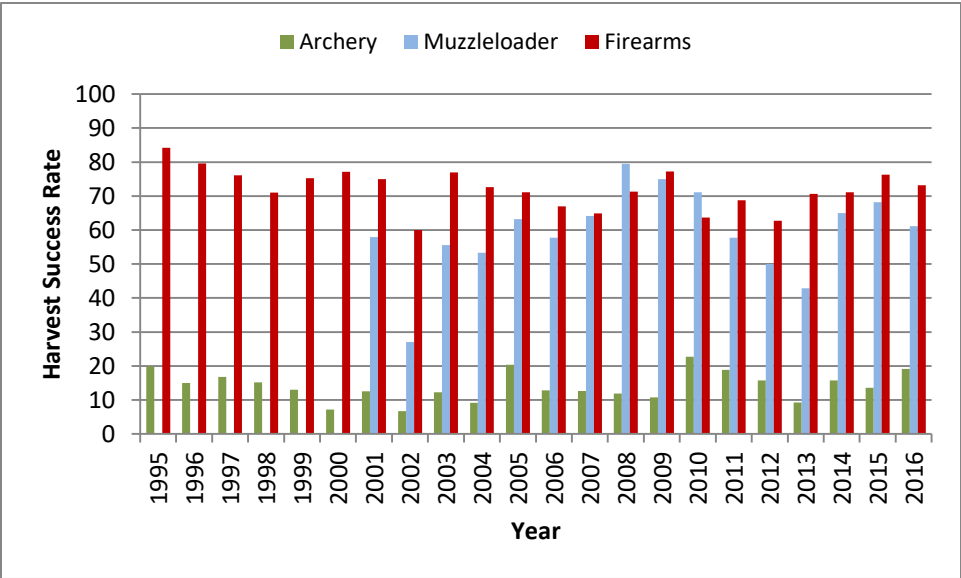


Figure 8. Harvest success rate by permit type for pronghorn in Kansas from 1995-2016.

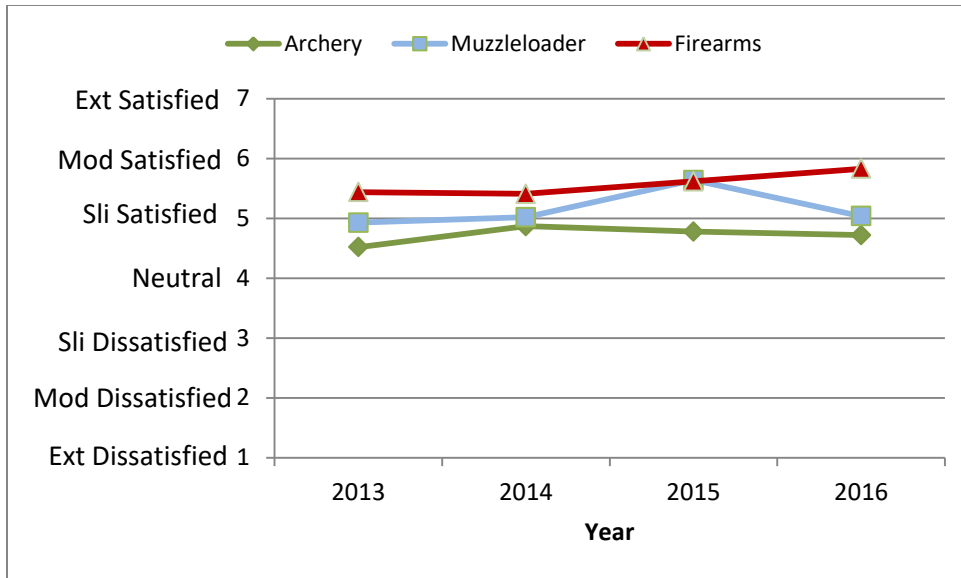


Figure 9. Mean pronghorn hunter satisfaction by permit type in Kansas from 2013-2016.

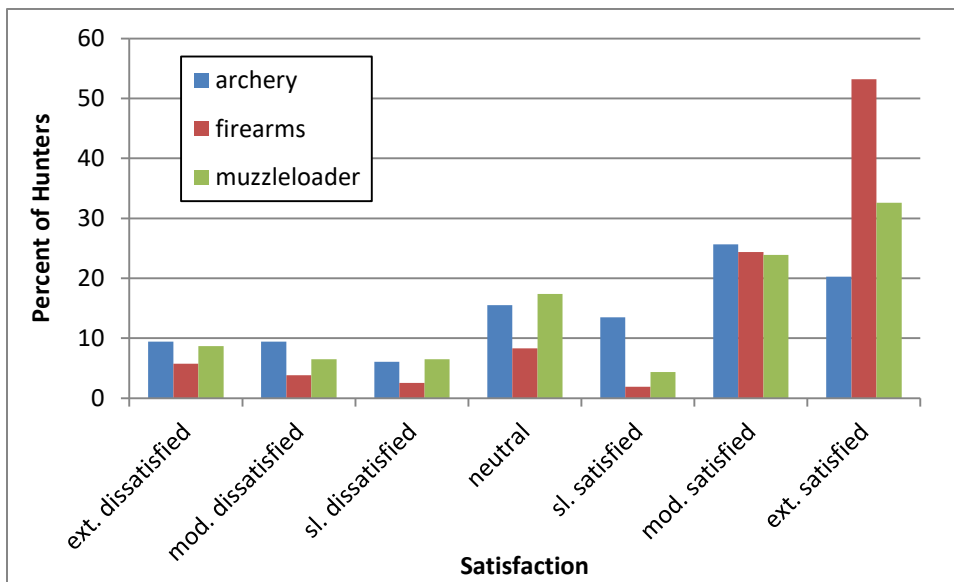


Figure 10. Hunter satisfaction by permit type during the 2016 Kansas pronghorn season.

**Harvest by Unit** – There are currently three management units open to pronghorn hunting in Kansas (Figure 11). These units, which are also deer management units, were adopted in 2001 in order to reduce confusion over big game unit boundaries. Pronghorn are generally very uncommon in the easternmost parts of all three units. Firearm and muzzleloader permits are restricted to one unit whereas archery permits



are valid in all three, so unit analyses below are limited to firearms and muzzleloader permits.

Total firearm and muzzleloader permits allocated in each unit is provided in Figure 12. Total harvest by unit is found in Figure 13. Harvest success by unit is found in Figure 14. Mean Hunt satisfaction by unit is provided in Figure 15.

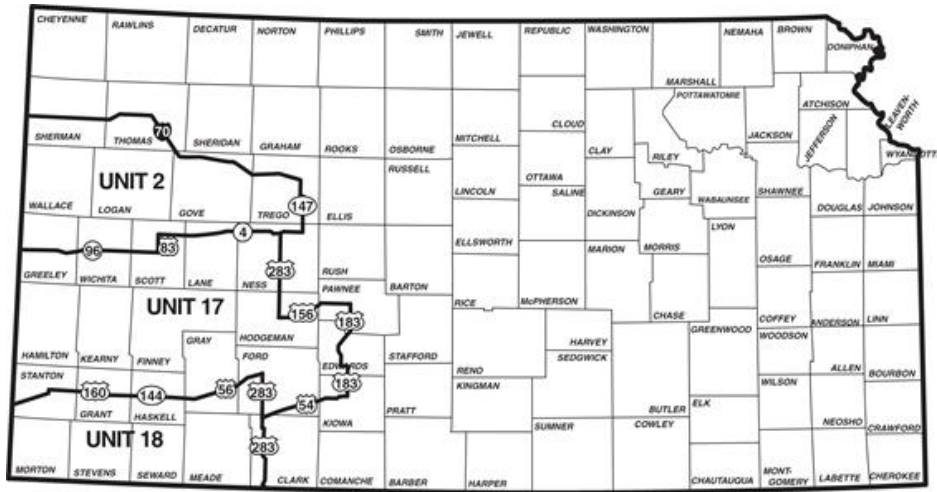


Figure 11. Kansas pronghorn management units.

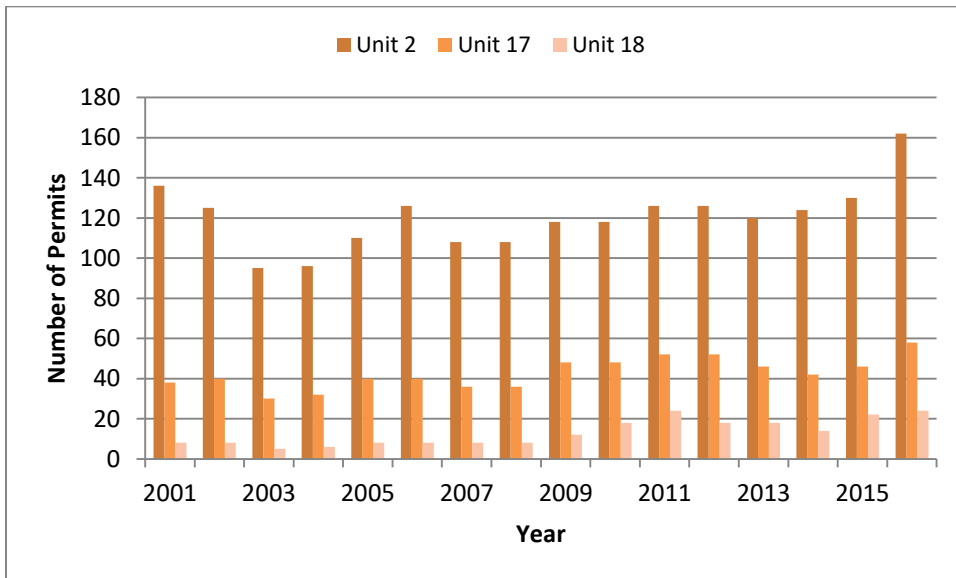


Figure 12. Number of firearm and muzzleloader permits issued in each of the three Kansas pronghorn management units from 2001-2016.

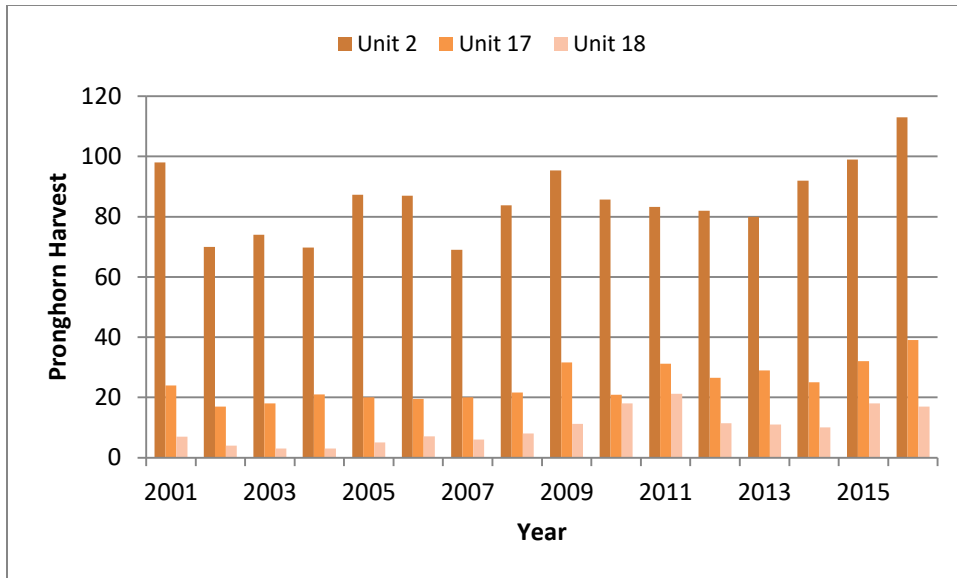


Figure 13. Pronghorn harvest in Kansas by management unit for firearm and muzzleloader permit holders from 2001-2016.

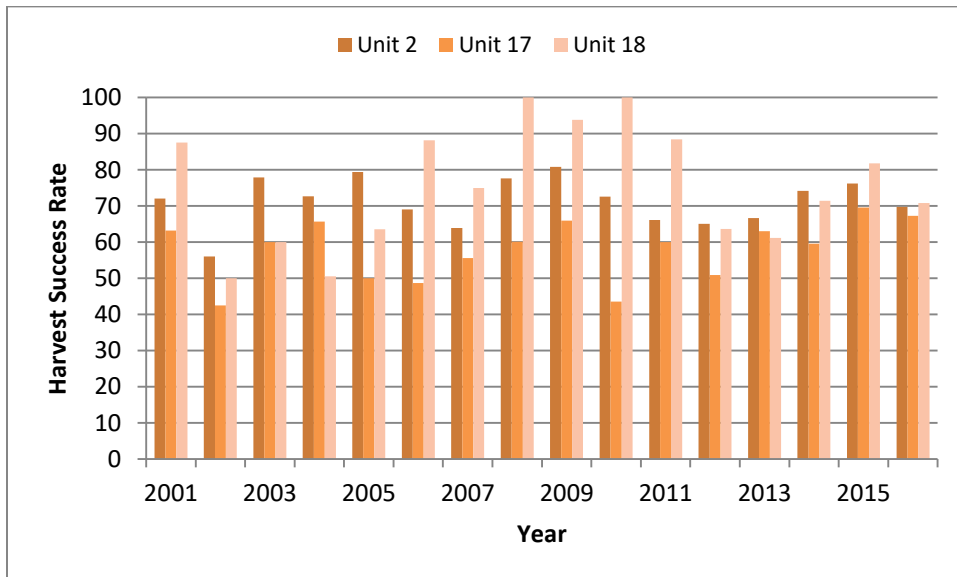


Figure 14. Harvest success rate by pronghorn management unit for firearm and muzzleloader permit holders in Kansas from 2001-2016.

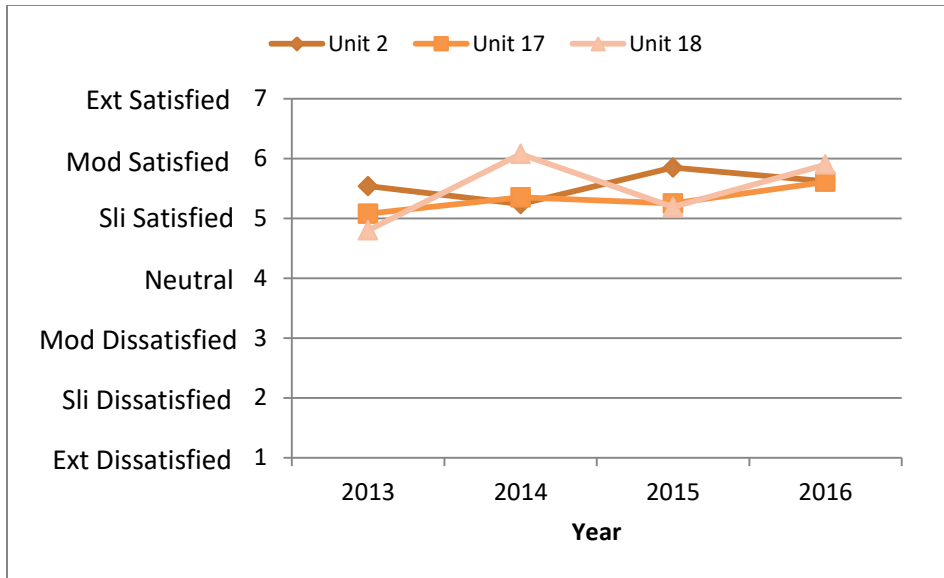


Figure 15. Mean pronghorn hunter satisfaction by unit for firearm and muzzleloader permit holders in Kansas from 2001-2016.

**Horn size** – As part of the harvest report, the Department began asking hunters to provide horn length and circumference measurements to the nearest 1/8 of an inch in 2009. Hunters take the measurements themselves, and given the frequency of whole numbers (8, 9...) and even halves (8.5, 9.5...), this data should be considered an estimate. However, it still provides for a meaningful comparison with age data and is being considered as an alternative to tooth collection.

Frequency of horn lengths and circumferences can be found in Figures 16 and 17, respectively. A scatterplot of this data can be found in Figure 18.

Mean horn lengths and circumferences of pronghorn harvested in Kansas can be found in Figure 19. Mean horn length and circumference by management unit and weapon can be found in Figures 20 and 21, respectively. The means for both of these measurements have been pretty consistent over time. There is no difference in mean pronghorn horn size by unit. By weapon type, the mean horn length of pronghorn taken by archery hunters is slightly lower than that of pronghorn taken by firearm or muzzleloader.

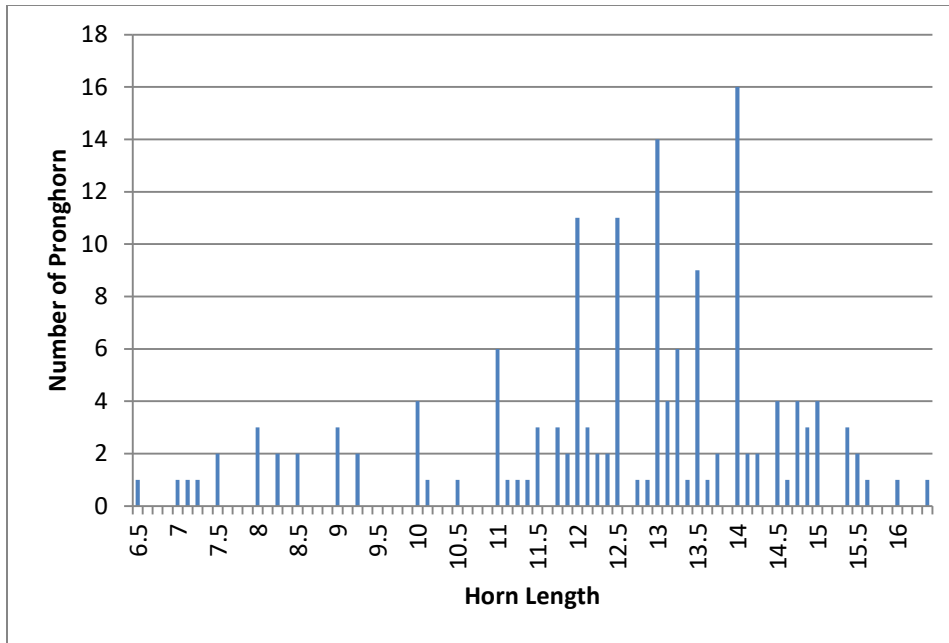


Figure 16. Horn length of pronghorn harvested in Kansas during the 2016 season.

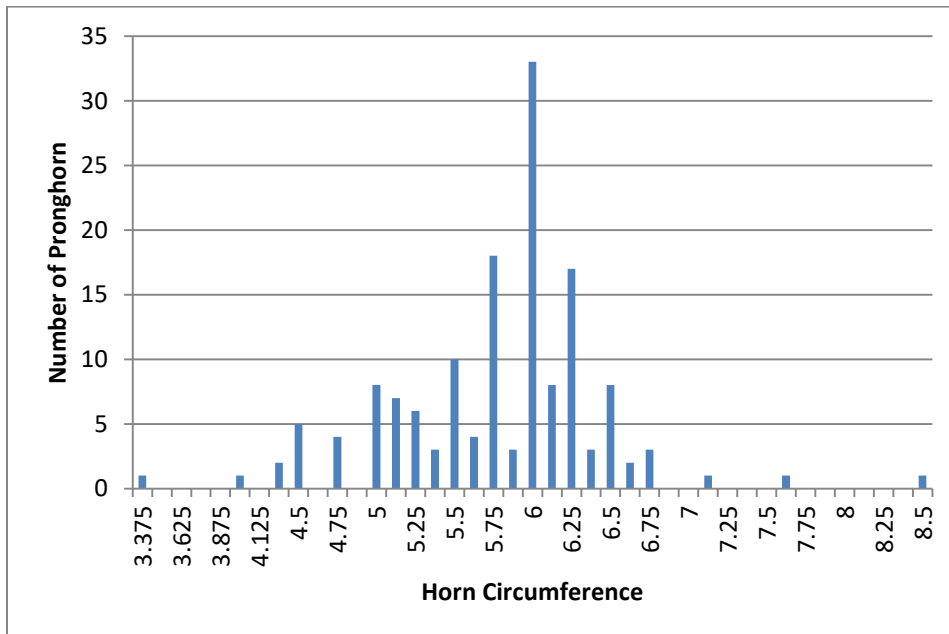


Figure 17. Horn circumference of pronghorn harvested in Kansas during the 2016 season.

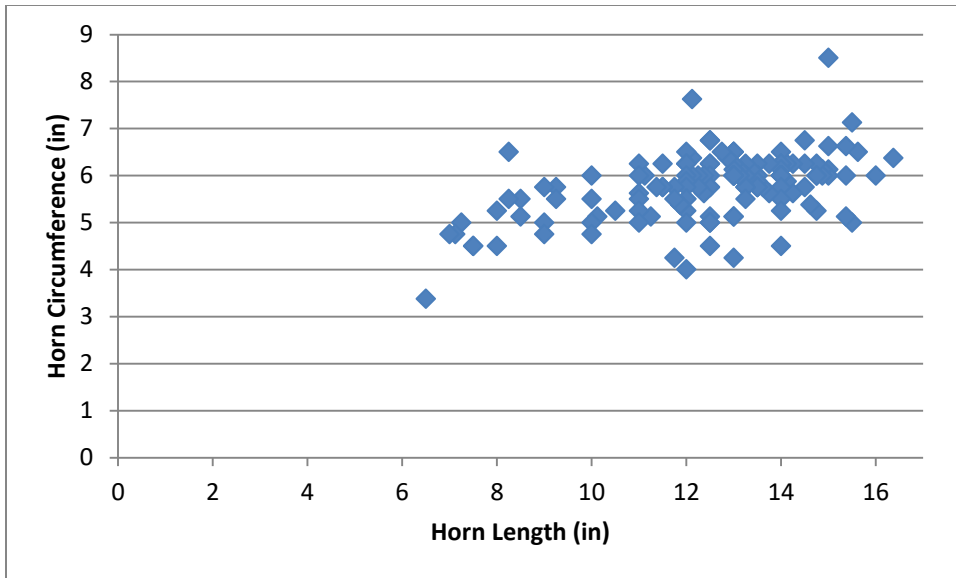


Figure 18. Scatterplot of horn length and circumference of pronghorn harvested in Kansas during the 2016 season.

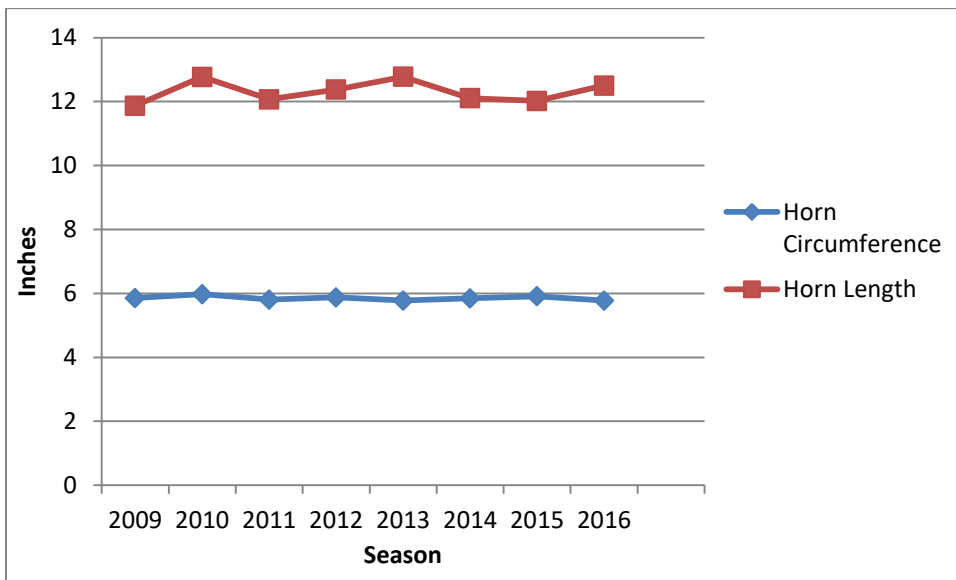


Figure 19. Mean horn length and circumference of pronghorn harvested in Kansas since 2009.

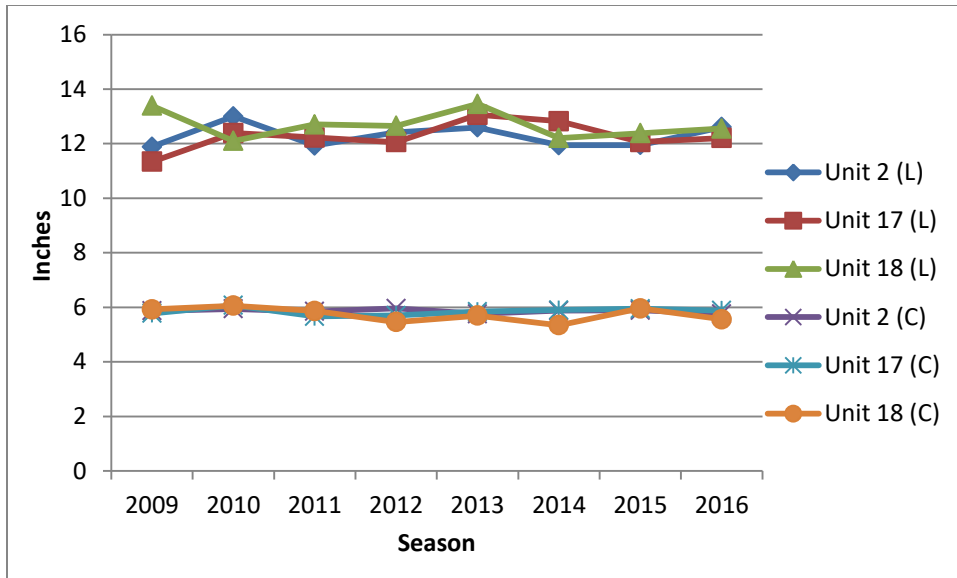


Figure 20. Mean horn length (L) and circumference (C) of pronghorn harvested in Kansas since 2009 by management unit.

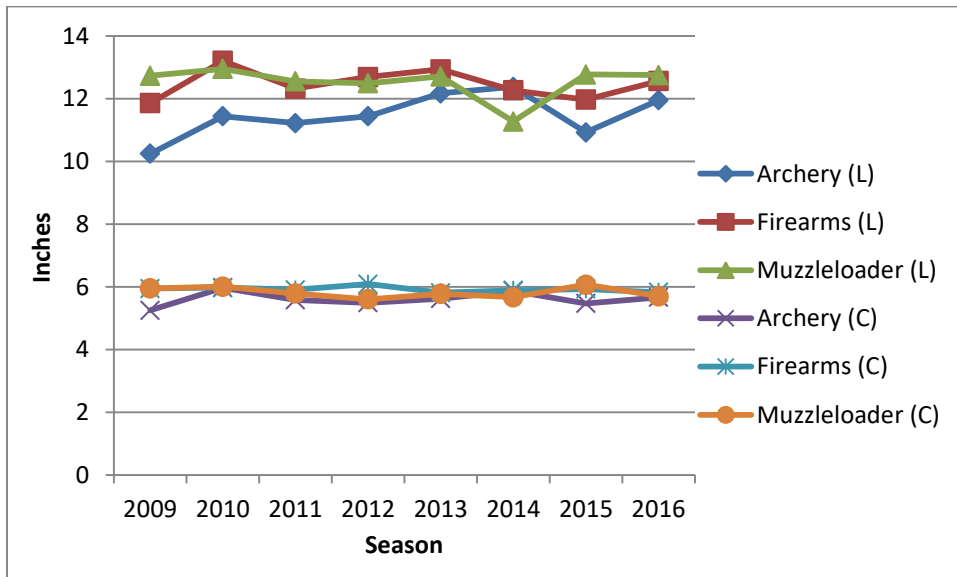


Figure 21. Mean horn length (L) and circumference (C) of pronghorn harvested in Kansas since 2009 by weapon of harvest.

**Nonresident Archery Permits** – Prior to 2006, pronghorn hunting in Kansas was restricted to residents. At that time, in response to legislative interest in establishing transferrable landowner pronghorn permits to provide nonresident access, the Department adopted regulations establishing unlimited nonresident archery permits. Some hunters have expressed concern about the potential impact this could have on the dynamics of pronghorn hunting in Kansas.

The average number of nonresident archery permit sales since the permit was established is less than eight. From 2013 through 2015, the average had increased to 14, but the nonresident permit cost increased from \$200 to \$300 last season, and sales fell to just six. Since 2006, less than 3% of archery permits have been purchased by nonresidents.

**Crossbows** – Prior to 2012, crossbows were only allowed during archery season by hunters possessing a disability permit. In 2012, regulations were adopted allowing crossbows to be used during big game archery seasons by any hunter age 16 and under (youth) or age 55 and older. In 2013, the opportunity to use crossbows during big game archery seasons was expanded to all archery hunters. Since that time, the percent of archery hunters using crossbows has been stable, and ranged from 14-17% (Figure 22).

One concern about the addition of crossbows into the archery season was that it could result in increased archery success rates such that archery permits would need to be allocated in a more limited manner. A comparison of crossbow and all archery hunter success rates is found in Figure 23. Crossbow hunter success has been 4.6% higher than total archery hunter success on average over the four year period. The increase in success rate translates into the additional harvest of just three to four pronghorn per year. At this point, there is no indication that changes in archery permit availability will be required.

**Wounding loss** – Hunters are asked how many pronghorn they wounded and didn't recover. Estimated wounding loss was 16 animals (7% of the total number harvested). Loss by weapon type were: archery – 9 (17% of archery harvest), firearm – 3 (2% of firearms harvest), and muzzleloader – 4 (12% of muzzleloader harvest).

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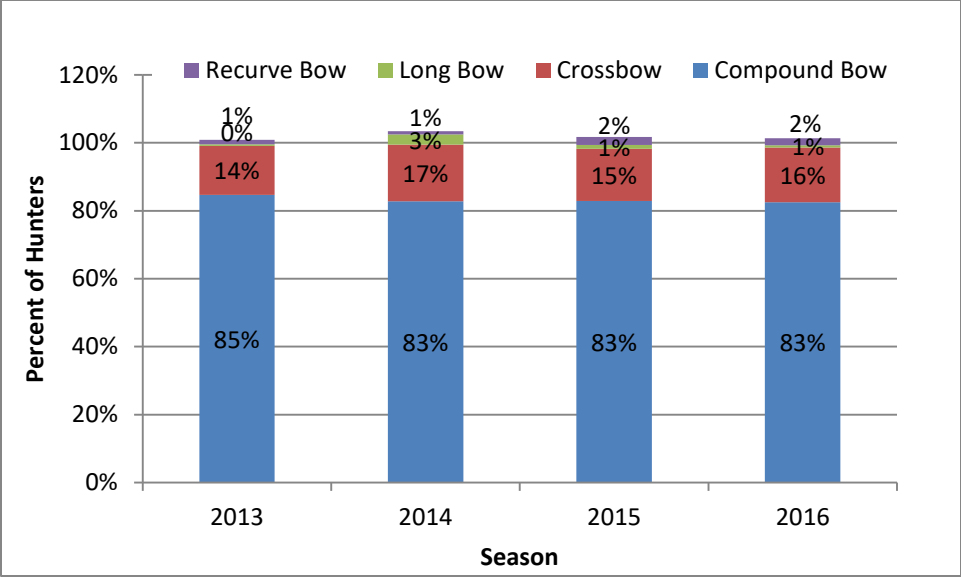


Figure 22. Percent of archery pronghorn hunters using different types of archery hunting equipment since 2012. (Totals exceed 100% because some hunters used more than one bow type.)

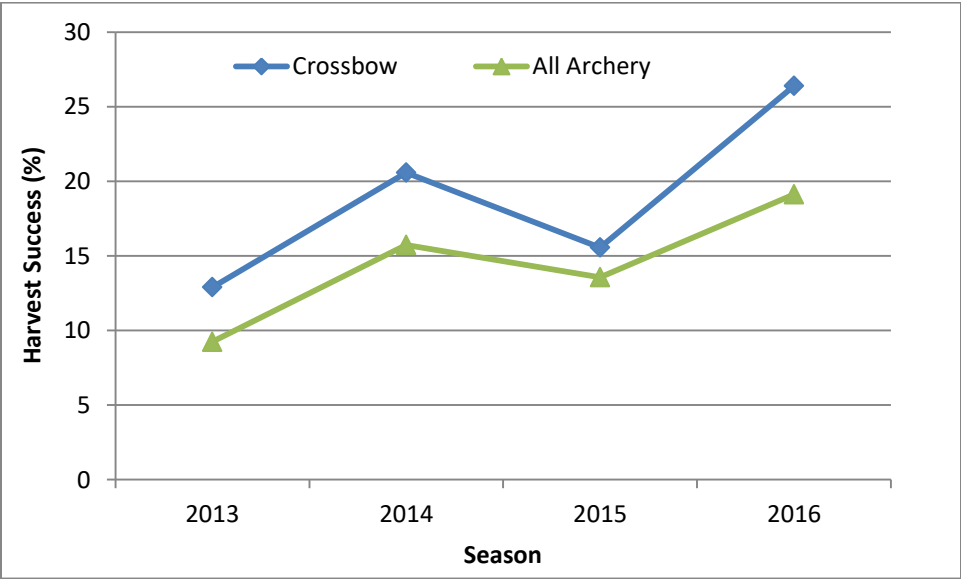


Figure 23. Harvest success rates by Kansas pronghorn hunters who used crossbows and all archery hunters combined.



Appendix 1.

2016 Antelope Draw Stats

Draw Results Report  
Dated 6-18-16

Management Unit	Permit Type	Permits Authorized	Total # of Applicants (1st) Choice	Preference Points (PP)	Number of Permits Issued by		Total Number of Permits Drawn
					Pref Pt	LO/T GEN	
Unit 2	Muzzleloader	18 LO/T 18 GEN	13 LO/T 64 GEN	0	12		13 LO/T 23 GEN
				1	1		
				2			
				3		7	
				4		11	
				5		5	
Unit 2	Firearms	63 LO/T 63 GEN	79 LO/T 316 GEN 23 YOUTH	0	41		63 LO/T 61 GEN 2 YOUTH
				1	21		
				2	1		
				3			
				4			
				5		40	
				6		10	
				7		4	
				8		7	
				9		1	
				10		0	
				11		0	
				12		1	
Unit 17	Muzzleloader	5 LO/T 5 GEN	1 LO/T 12 GEN	0	1		1 LO/T 9 GEN
				1			
				2			
				3		8	
				4		1	
Unit 17	Firearms	24 LO/T 24 GEN	29 LO/T 65 GEN 1 YOUTH	0	12		24 LO/T 24 GEN
				1	10		
				2	0		
				3	1	1	
				4	1	17	
				5		6	
Unit 18	Muzzleloader	4 LO/T 4 GEN	0 LO/T 7 GEN	0			0 LO/T 8 GEN
				1		3	
				2		4	
				3		1	
Unit 18	Firearms	8 LO/T 8 GEN	9 LO/T 33 GEN 5 YOUTH	0	5		8 LO/T 8 GEN
				1	1		
				2	1		
				3	1	5	
				4		1	
				5		1	
TOTAL		244	131 LO/T 497 GEN 29 YOUTH				109 LO/T 133 GEN 2 YOUTH
			657				244
Preference points purchased 482							