

Growing Hops in North Carolina: Variety Trials in the Central Piedmont and Southwestern Mountains of North Carolina

Jeanine M. Davis¹, Rob Austin², and Scott King²

Dept. of Horticultural Science, NC State University, Mtn. Hort. Crops Research & Extension Center, Mills River, NC 28759
Dept. of Soil Science, NC State University, Campus Box 7619, Raleigh, NC 27695



Jeanine M. Davis

Introduction

North Carolina is home to more than 58 craft breweries and has one of the strongest “buy local” movements in the country. This has fueled an interest within the agricultural community to grow ingredients for locally produced beer. Small private hop (*Humulus lupulus*) yards exist across the state with over 50 currently in production. Since there is no regionally appropriate information available to support this industry, we initiated variety trials in very two different regions in the state.

Materials and Methods

The piedmont study is in Raleigh where the summers are hot and humid and summer rainfall is usually heavy. The mountain study is in Mills River near Asheville, where the summers are slightly cooler and usually drier. Ten varieties (Fig. 1) were planted in four replications in .10 ha hop yards. The piedmont study was planted in 2010 on a short-trellis system (3.7 m tall) (Fig. 3) and the mountain study was planted in 2011 on a high-trellis system (6 m tall) (Fig. 4). Standard cultural practices were followed and diseases and insects were managed using products recommended in Vermont and New York. Fertility was based on results from companion on-farm studies (data not shown).

Varieties	Piedmont	Mountains
Cascade	*	*
Centennial	*	*
Chinook	*	*
Galena		*
Magnum		*
Mt. Hood	*	*
Newport	*	*
Northern Brewer	*	
Nugget	*	*
Sterling	*	
Willamette	*	*
Zeus	*	*

Fig. 1. Varieties in the piedmont and mountain studies.

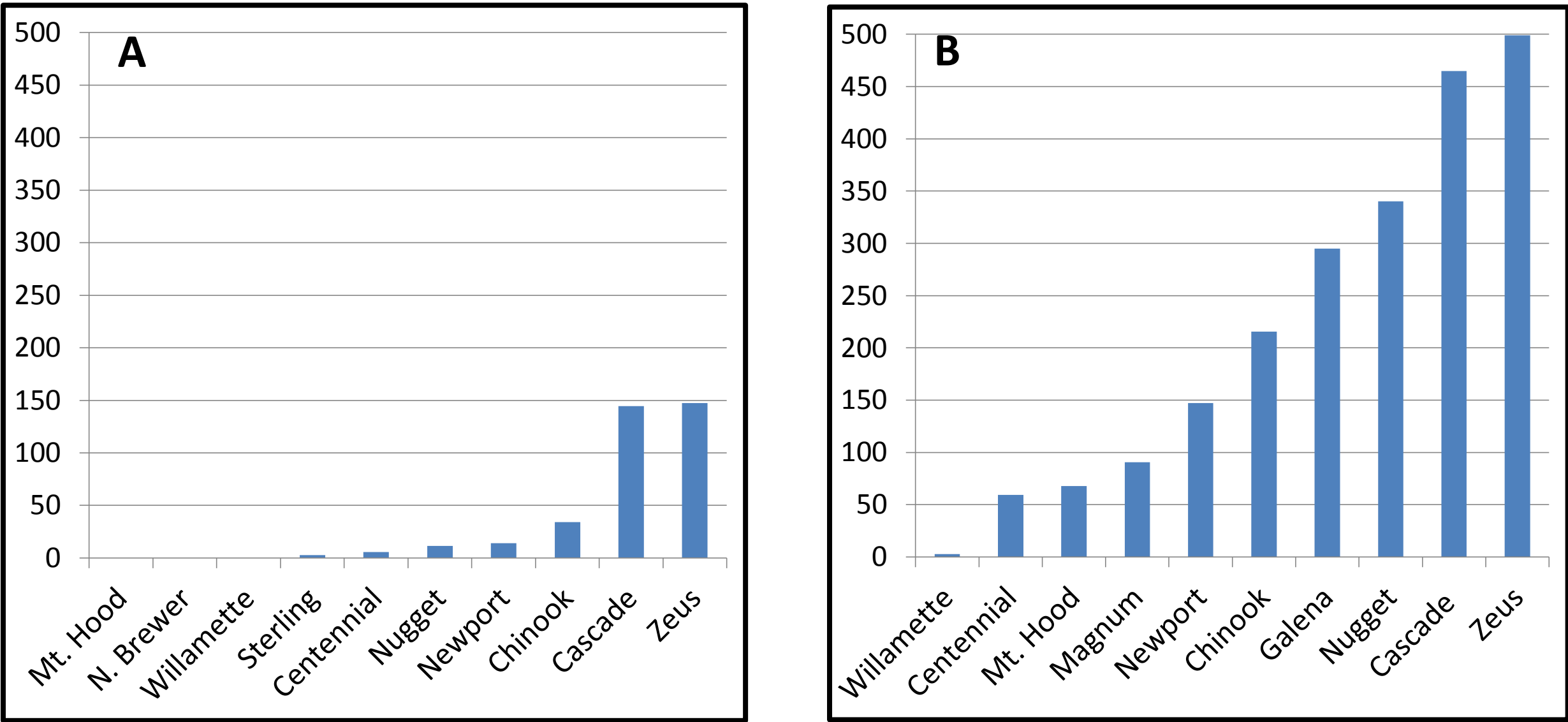


Fig. 2. Average yield of wet hops per plant (in grams) in the second year from the piedmont hop yard (A) and first years the mountain hop yard (B) in 2011..

Results

In the second year of production in the piedmont hop yard, 85% of the total yield was produced from just two varieties, Cascade and Zeus (Fig. 2). The hops were hand-harvested on four dates from July 18 through Sept. 1. Seventy-five percent of the total harvest was collected on the first harvest date. In the first year of production in the mountain hop yard, over 70% of the total yield was harvested from four varieties, Zeus, Cascade, Nugget, and Galena (Fig. 3). The hops were hand-harvested on eight dates from July 28 through Sept 12. Sixty-seven percent of the total harvest was spread fairly evenly throughout August. Depending on variety, the yields at the mountain yard were 3 to 30 times greater than in the piedmont yard.



Fig. 3 The short trellis system with a fixed top wire in the piedmont yard.



Fig. 4. For the mountain yard high trellis we have a moveable top wire that can be lowered by hooking it to a trailer hitch (A) or by way of a winch (B). Many of the mountain hop yards are on slopes. Use of moveable top wire eliminates the need for cherry-pickers or ladders for attaching strings or harvesting (C). Fresh hops harvested in 2011 (D)

Conclusions

Many of the private commercial hop yards in North Carolina grow five or more varieties, many of which this research has already identified as poor producers. These less productive varieties will need to be removed and replaced, a laborious and expensive effort. The growers establishing hop yards in 2012 are already benefitting from the results of this new research program through identification of varieties that perform well in our trials. These studies clearly demonstrate the importance of public variety trials, particularly on crops with significant startup costs and with newly emerging markets.

Funded by the Goldenleaf Foundation and
A USDA Specialty Crop Block Grant through the NC
Dept. of Agriculture & Consumer Services