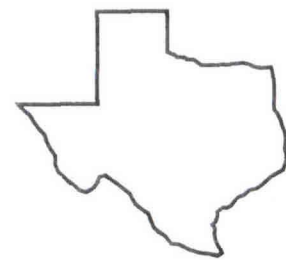
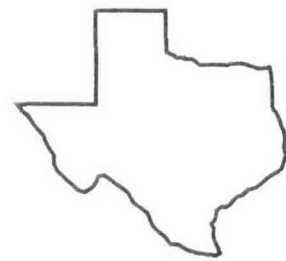
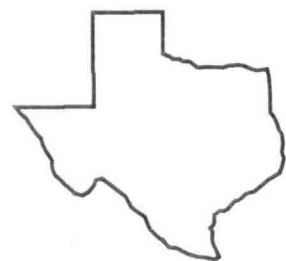
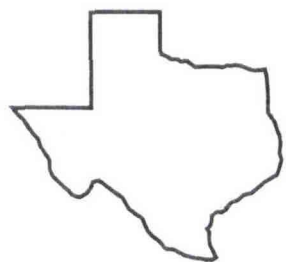
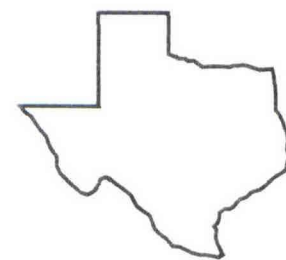


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## EFFECT OF WOOD TYPE ON BLUEBERRY FLOWER BUD CHARACTERISTICS: II. FRUIT RIPENING PATTERNS

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**Background.** Frost protection and avoidance mechanisms have become critical issues in commercial blueberry production. Spring frosts or freezes have affected blueberry yields in 4 of the past 6 years. It is known that flower buds formed on postharvest growth bloom later than buds formed on spring wood. Spring growth can further be divided into two categories based on wood vigor, either spring growth arising from older weak growth, or spring growth on 1-year-old vigorous shoots.

Another key factor in assessing cold damage is the stage of flower bud development at exposure. Figure 1 illustrates the ranking system 1-7 (1=completely dormant, 7=petal fall) of flower bud development (Spiers, 1978). The more exposed the flower parts, the less cold tolerant.

This study was established to determine the role of wood type and flower bud stage on ripening patterns of rabbiteye blueberries.

**Research Findings.** On March 18, 'Tifblue' blueberry wood was classified into 1 of 3 growth seasons: 1) spring-old, spring growth off old wood; 2) spring-new, spring growth from 1-year-old wood; or 3) postharvest. Four hundred flower buds were identified as to stage of development for each wood type and mean stage of flower development was determined. Floral buds formed on both spring wood types were earlier to develop in spring than those on fall growth. On March 18, flowers on spring growth had reached stage 6 or greater (full bloom), while flowers on postharvest growth were approaching stage 4. Flower buds formed on postharvest wood exhibited a delay in full bloom of 1-4 weeks compared to buds formed on both types of spring wood.

On June 24 and July 11, all fruit were harvested from 5 shoots of each of the wood types. These dates correspond to early and mid season harvests, respectively. Fruit weight and percentage ripe fruit were determined for all fruit harvested. Soluble solids (SS) or sugar content and fruit size were determined for mature blue fruit. When harvested in June, fruit formed on spring-old wood had lower sugar content, were smaller, and later maturing than fruit borne on growth from new wood with 39 versus 55-60% mature fruit (Table 1). There were no differences in fruit removed from spring-new and postharvest growth. On the second harvest date, there was no difference in fruit ripening or quality on all wood types, with the exception of mean fruit size.

**Application.** Postharvest pruning may be used as a tool for avoiding frost damage by encouraging late season growth which is later blooming. Although flower buds formed on postharvest wood were later blooming, there was no difference in ripening date between fruit borne on postharvest wood and fruit borne on spring-new wood. Pruning may also be used to enhance fruit quality by maintaining vigorous healthy growth. Fruit formed on spring-old wood were later ripening and poorer quality. This is more likely a function of vigor than bud physiology.

**Literature Cited.**

Spiers, J. M. 1978. Effect of stage of bud development on cold injury on rabbiteye blueberry. J. Amer. Soc. Hort. Sci. 103:452-455.

Table 1. Season of wood development effect on fruit ripening patterns at two harvest dates.

Wood type	1st harvest - 6/24			
	All fruit		Mature fruit	
	% Mature	Size (g/berry)	SS	Size (g/berry)
Spring-Old	39.0 b	0.87 b	11.72 b	1.31 b
Spring-New	55.4 a	1.12 a	14.66 a	1.52 a
Fall	59.6 a	1.17 a	15.56 a	1.49 a
	2nd harvest - 7/11			
Spring-Old	60.3	1.10 b	14.50	1.46
Spring-New	75.0	1.26 a	15.18	1.51
Fall	61.4	1.16 ab	15.02	1.50

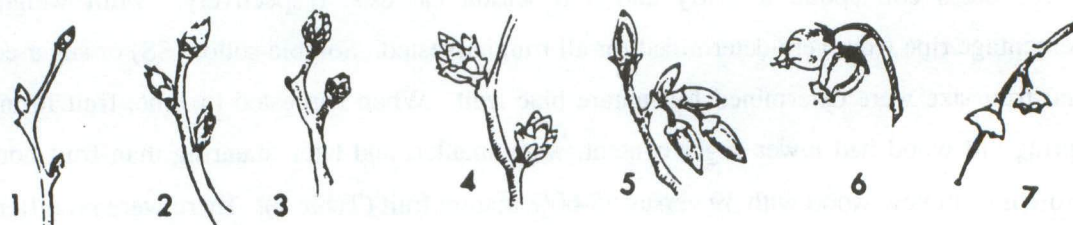


Figure 1. Stages of flower-bud development in rabbiteye blueberry.