



## **Yield, fruit quality, contents and sensory quality of old apple varieties trained as slender spindle under organic and integrated cultivation conditions**

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Between 2006 and 2013 the old apple varieties 'Ananas Reinette', 'Ilzer Rosenapfel', 'Kronprinz Rudolf', 'Steirischer Maschanzker', 'Goldparmäne', 'Roter Boskoop', 'Ribston Pepping', 'Steirische Schafnase', 'Winterbananenapfel', 'Lavanttaler Bananenapfel', 'Himbeerapfel' and 'Florianer Rosmarin' (from 2009 on also 'Roter Berlepsch', 'Cox Orange' and 'Kanada Reinette') were tested for their fresh market suitability at the experimental orchard Haschhof of the HBLA und BA für Wein- und Obstbau Klosterneuburg under organic and integrated cultivation (IP) conditions trained as slender spindle. In 2010 the effect of an organic and a combined "integrated-organic summer" plant protection strategie on fruit quality and pesticide residues was tested in addition.

No pesticide residues were detected in fruits of both plant protection strategies, except on fruits of "integrated-organic summer" Schafnase in 2010. At harvest 2010 the bio-variant showed a significantly higher percentage of fruits with skin defects. The losses due to parasitic diseases during storage were strongly depending on the cultivar, but hardly affected by the plant protection strategy in this year.

Looking at the entire experimental period, most of the varieties in the organic plot showed a comparable fruiting performance as those in the IP plot. The best fruiting performances were found with 'Winterbananenapfel', 'Roter Boskoop' and 'Kronprinz Rudolf', while the cumulative yield of 'Florianer Rosmarin', 'Himbeerapfel' and 'Lavanttaler Bananenapfel' remained below average. With respect to external fruit quality and storability 'Winterbananenapfel', 'Steirischer Maschanzker', 'Roter Boskoop', 'Kronprinz Rudolf' and 'Ilzer Rosenapfel' showed comparatively good results. With 'Ananas Reinette' the significantly lowest total phenolics contents were determined. 'Kanada Reinette', 'Roter Boskoop' and 'Ananas Reinette' showed a high acidity. High contents of soluble solids were found with 'Goldparmäne', 'Roter Berlepsch' and 'Ribston Pepping'. As fresh fruit 'Roter Berlepsch', 'Kronprinz Rudolf', 'Ilzer Rosenapfel', 'Ananasreinette', 'Roter Boskoop' and 'Goldparmäne' were rated the best, 'Cox Orange', 'Kronprinz Rudolf' and 'Ilzer Rosenapfel' were the best varieties for apple juice.