

Grapevine Nutrition

- The best diagnostic tool is your eyes!



Have you seen these in your vineyard?

- Nutritional Disorders
- Environmental Stresses
- Pesticide Toxicities

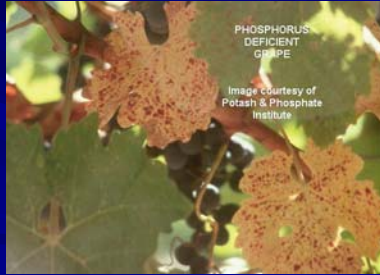
Nutritional Disorders

Nitrogen



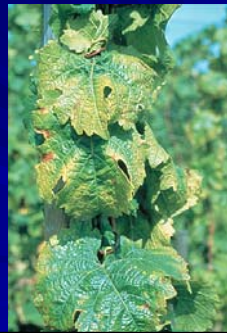
Nutritional Disorders

■ Phosphorus



Nutrient Disorders

■ Potassium deficiency



Nutritional Disorders

■ Potassium deficiency



Nutritional Disorders

■ Potassium deficiency



Nutritional Disorders

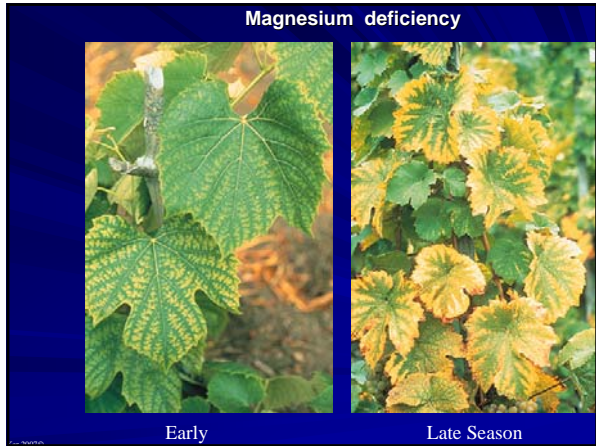
■ Potassium deficiency



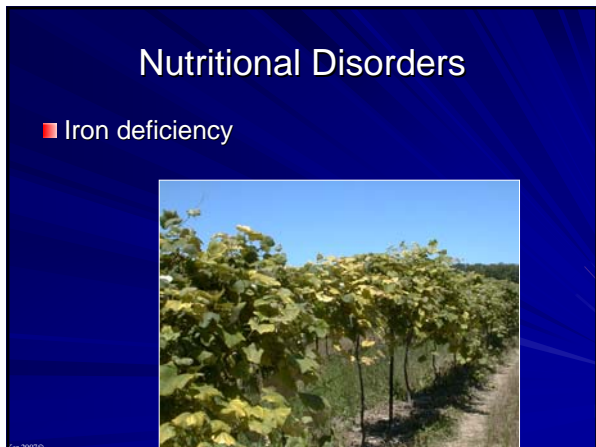
Nutritional Disorders

■ Magnesium









Nutritional Disorders

■ Iron deficiency



Nutritional Disorders

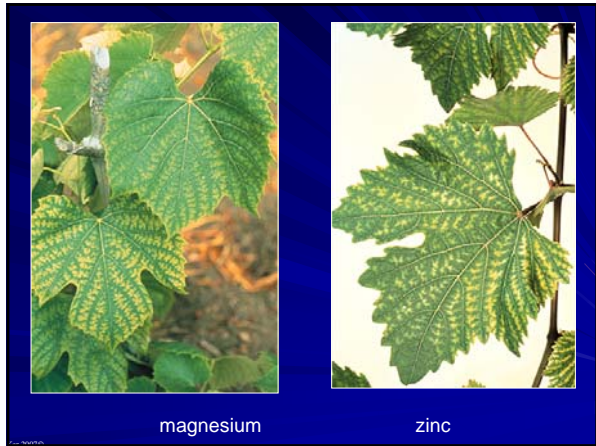
■ Manganese



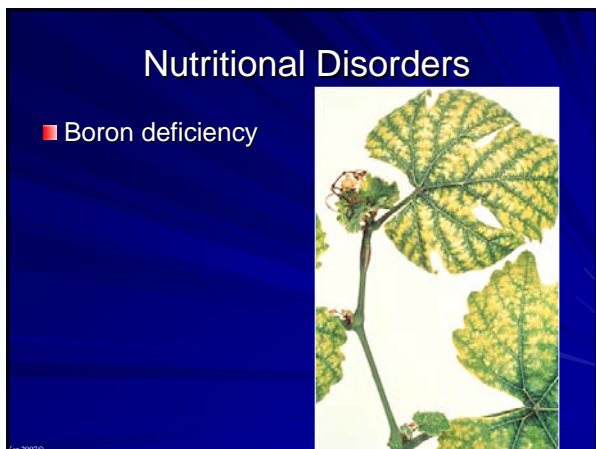
Nutritional Disorders

■ Zinc









Nutritional Disorders

■ Boron toxicity



Environmental Stresses

■ Drought



Environmental Stresses

■ Drought



Environmental Stresses

■ Drought



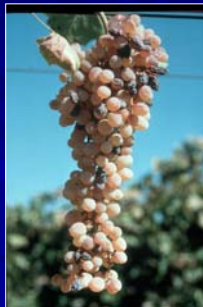
Environmental Stresses

■ Drought – induced Boron deficiency



Environmental Stresses

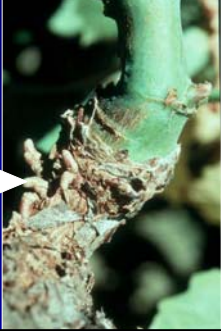
■ Drought stress during berry growth & ripening



Environmental Stresses

- Excess water


Adventitious roots



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Environmental Stresses

- Heat



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Environmental Stresses

- Heat



...

Environmental Stresses

- Heat – berries



Environmental Stresses

- Heat – berries



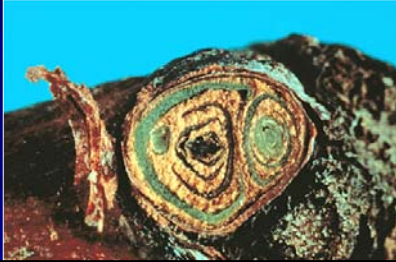
Environmental Stresses

- Lightning



Environmental Stresses

■ Winter injury



Environmental Stresses

■ Winter injury



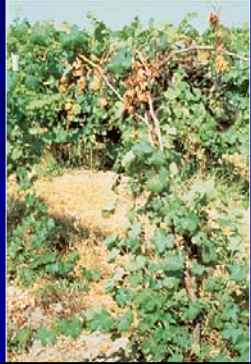
Environmental Stresses

- Winter injury
 - Phloem dead
 - Xylem alive



Environmental Stresses

■ Winter injury



Environmental Stresses

■ Spring freeze



Environmental Stresses

■ Hail



Environmental Stresses

■ Hail



Environmental Stresses

■ Salt



Environmental Stresses

■ Air pollution



Pesticide Toxicities

■ Sulphur



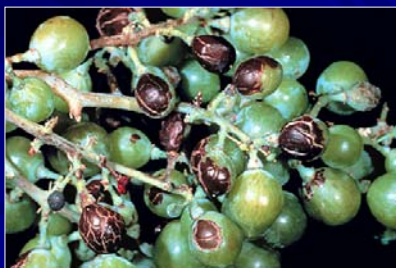
Pesticide Toxicities

■ Sulphur



Pesticide Toxicities

■ Sulphur



Pesticide Toxicities

■ 2-4, D



Pesticide Toxicities

■ Glyphosate



Pesticide Toxicities

■ Paraquat



Pesticide Toxicities

■ Paraquat translocated



Pesticide Toxicities

■ Dicamba



Pesticide Toxicities

■ Simazine



Pesticide Toxicities

■ Diuron