A review of evidence of nutritional and health benefits from consumption of fruits with a high content of nutrients and phytochemicals - with reference to the term *Superfruits* - and effect of genotype and agronomic aspects on their quality.

Alison Hodder
Senior Officer – Horticulture
Luca Fornasari, Consultant
Agriculture & Consumer Protection Department
Ten years of FAO-WHO collaboration on promoting consumption of fruit and vegetables for their health benefits.

Globally, overall per capita consumption of fruit and vegetables falls far short of minimum daily recommended level of 400 grams per capita.

Intake generally 20 - 50 % of the minimum recommended level.
• Review – considered over 3000 published scientific papers and other documents.
• Research focused particularly on antioxidant activity of many bioactive molecules present in fruits, esp. phenolics and carotenoids.
• Lack of proof of direct relationship between consumption of natural antioxidants and disease prevention.
• Incomplete understanding of physiological mechanisms underlying observed or claimed benefits of phytochemicals for human health.

• Evidence inconclusive and scientific opinion divided on whether antioxidant behaviour of phytochemicals in fruit is the main factor underpinning health benefits.

• Results obtained in vitro and in vivo inconsistent, sometimes contradictory, and overall inconclusive.
• Standard methodologies needed for measuring, comparing and differentiating among fruit phytochemical components.
• Evidence base for being able to declare certain fruits more super than others appears less solid.
• Examples of uncertainty:
  – Which phenolic compounds assayed?
  – How to situate observed genotypic and environmental agronomic determinants of variability in phytochemical content?
  – Which portions of fruits considered?
  – Relevance of seed content of phytochemicals?
• Comprehensive studies also needed on interactions of various phytochemicals present in fruit with each other/other foods in the diet.
• Postulates about health-protecting properties developed through studies *in vitro* need scientific corroboration *in vivo.*
In conclusion...

• Superficial use of weakly supported health claims and selective *superfruit* classifications could be counter-productive and self-limiting in the long term.

• Generic use of the term *superfruit* for *all* fruits could have value.
THANK YOU FOR YOUR ATTENTION

alison.hodder@fao.org