

# AGRICULTURE COVERAGE IN FSTA

Trusted by researchers, scientists, students and government bodies in 158 countries across the globe, **FSTA** is the definitive way to search over fifty years of historic and emerging research in the sciences of food and health.

Covering a wide range of interdisciplinary material, **FSTA** includes a wealth of international agricultural content including:

## From farm-to-fork and beyond, including urban agriculture

All post-farm gate aspects of agricultural products for use as foods, food ingredients, or pet foods e.g. storage, transport, processing, packaging, trade etc.

## Impact of pre-farm gate agricultural factors on the quality and safety of foods from plants and animals, and pet foods:

- Quality parameters e.g. Composition, (biofortification, nutritional values), colour, meat defects and tenderness, size, physicochemical properties, somatic cell counts, etc.
- Safety e.g. bioaccumulation of heavy metals, contamination with foodborne pathogens, toxins

## Pre-farm gate agricultural factors include:

- Agronomic factors (climate and environmental factors, cultivation approaches, e.g. hydroponics, fertilizers and nutrient application, irrigation and water stress, light and shading, plant growth regulators, pre-harvest diseases and pests, pesticides and biocontrol, rootstocks, soil composition and contamination, harvesting methods and equipment)
- Animal husbandry (feeds, veterinary drugs, rearing/fattening, housing and transport, slaughter, milking, egg collection, and animal diseases, welfare and stress)
- Apiculture (botanical origin, control of bee diseases)
- Aquaculture (feeds, stocking density, diseases)

## Animal nutrition and health in animals for food production and relevant to food quality/safety

- Development of antibiotics resistance
- Tissue culture studies
- Cultured meat

## Animal and plant science (which impact on edible food quality/safety)

- Breeding and genetics of animals and plants to improve quality/safety of the foods
- QTL (quantitative trait loci) studies in crops and livestock
- Cultivar and varietal assessment
- Genetic engineering of crops
- Cloned animal foods
- Methods for safety/quality evaluation of novel foods, such as GM

## Ripening and senescence of edible crops and grain development

## Physiology/biochemistry studies of safety/quality-related factors

- Crops (starch synthesis, pectin structure, pigments, storage proteins)
- Meat (lean/intramuscular fat content, marbling, tenderness)
- Milk (fatty acid composition)

## USING FSTA FOR YOUR AGRICULTURE RESEARCH

### Example search questions

- How do different feed types affect the polyunsaturated fatty acid content of goat milk?
- How do rearing practices effect beef tenderness?
- What developments are happening in test tube meat?
- What impact does ethylene production during ripening have on apple quality changes during storage? (*Sample record on following page*)

## SOURCES

Agricultural content is drawn from a wide variety of sources including journals, patents, books, reports and more. Here are some examples of agriculture-focused journals included within FSTA:

- Journal of Animal Science
- Scientia Horticulturae
- Journal of Agricultural and Food Chemistry
- Poultry Science
- Asian-Australasian Journal of Animal Sciences
- Semina: Ciencias Agrarias
- Xinjiang Agricultural Sciences
- Australian & New Zealand Grapegrower & Winemaker
- Spanish Journal of Agricultural Research

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## SAMPLE FSTA RECORD FOCUSED ON AGRICULTURE

**A comprehensive study on the main physiological and biochemical changes occurring during growth and on-tree ripening of two apple varieties with different postharvest behaviour.**

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**Source:** Plant Physiology and Biochemistry, Volume:135, Pages:601-610

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**Document Type:** Journal Article

**Abstract:** Apple quality and the storage potential likely depend on a range of physiological and biochemical events occurring throughout fruit development and ripening. In this study, we investigated the major physiological (ethylene production and respiration) and biochemical changes (related to sugar and malic acid content as well as antioxidant metabolism) occurring during growth and on-tree ripening of two apple varieties ("Granny Smith" (GS) and "Early Red One" (ERO)) with known differences in their postharvest behaviour, mainly firmness loss and susceptibility to superficial scald. Our results demonstrate that the higher storability and the limited loss of firmness of "GS" fruit was associated to a higher acid content, mainly malic acid, that seemed to be regulated already at fruit set (20 DAFB). The reduced loss of firmness during storage in "GS" was also associated to the fruit inability to produce ethylene upon harvest resulting from very low 1-aminocyclopropane-1-carboxylic acid oxidase (ACO) activity. Sugar accumulation, on the other hand, was similar among both varieties as was also observed for the rate of fruit growth or the fruit respiration pattern. In addition, the higher susceptibility of "GS" if compared to "ERO" to superficial scald was not associated to peroxidative damage (malondialdehyde accumulation) nor to higher levels of the sesquiterpene alpha-farnesene but rather mediated by a fruit antioxidant imbalance resulting from higher H<sub>2</sub>O<sub>2</sub> levels and lower antioxidant (peroxidase) enzymatic capacity. The interplay between ethylene, respiration and antioxidants or sugars and organic acids during apple growth and development is further discussed. *All rights reserved, Elsevier.*

**Keywords:** ANTIOXIDATIVE ACTIVITY; APPLES; ETHYLENE; FIRMNESS; MALIC ACID; ORGANIC ACIDS; RESPIRATION; RIPENING; STORAGE; SUGARS; VAR

## FURTHER INFORMATION

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If you would like more detailed information or to set up a training session, please contact Angela Ball [a.ball@ifis.org](mailto:a.ball@ifis.org) (existing customers) or Carol Durham [c.durham@ifis.org](mailto:c.durham@ifis.org) (non-customers).



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