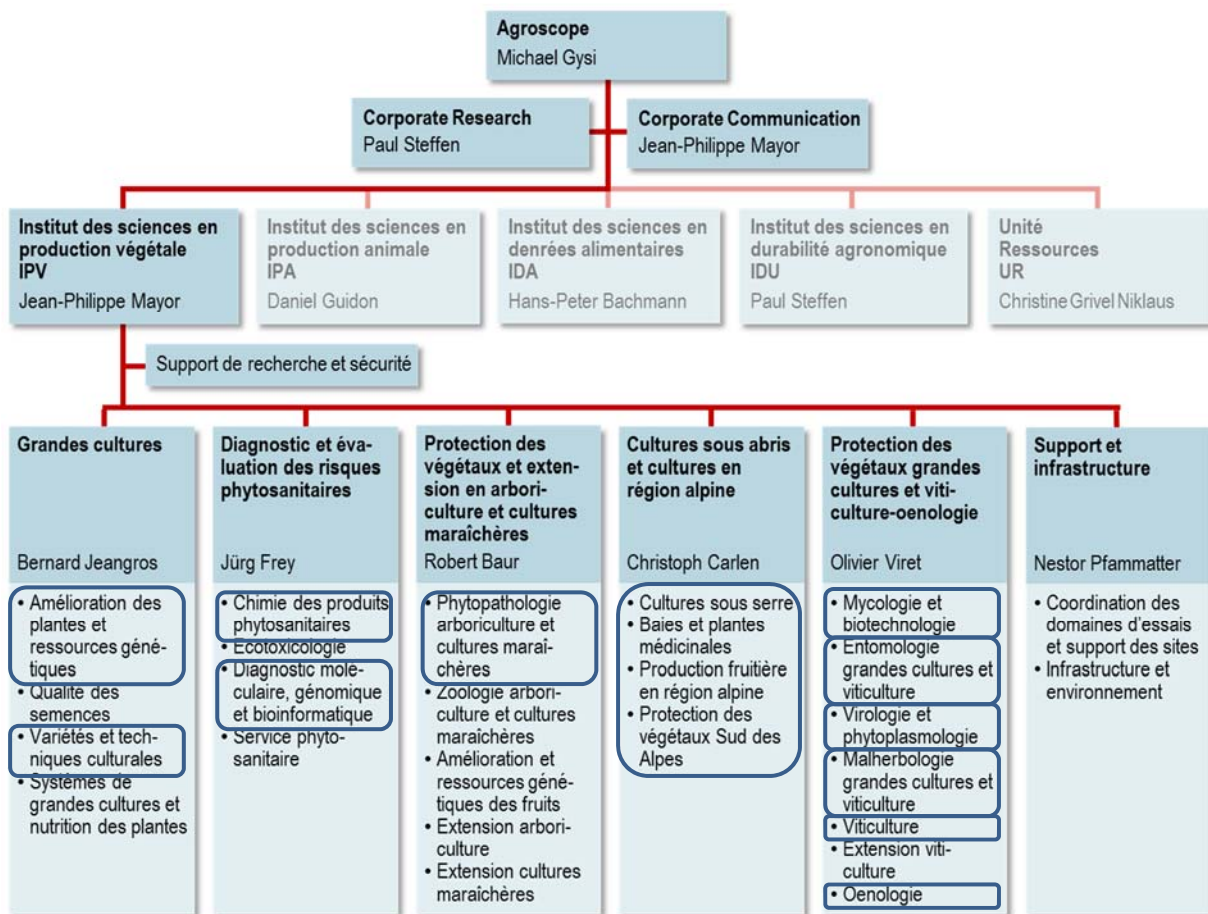


Analytical profile Sheltered Crops and Crops in the Alpine Region (IPS Conthey/Cadenazzo)



Main analytical activities for the Conthey and Cadenazzo centres

The focus is on rapid, multi-purpose analytics associated with cultivation over the entire chain

- Analyses of the soil and its environment:**
 - Analyses of soil diseases
 - Combating and strategies against soil diseases (diagnostics)
 - Analysis of drought stress
- Analyses of the plant:**
 - Use of Licor 6400
 - Pressure chamber
 - Determination of diseases and pests
- Post-harvest analyses:**
 - Analyses of fruit and vegetables
 - Analysis of medicinal and aromatic plants
 - Determination of diseases and pests
 - Distillation of essential oils
 - Microbiological analyses
 - Molecular analyses (PCR)

Activities and projects

- 14.14.1.1: Greenhouse Crops
- 14.14.2.1: Berries and Medicinal Plants
- 14.14.3.1: Fruit Crops in the Alpine Region
- 14.14.4.1: Plant Protection South of the Alps
 - Third-party financed projects associated with analysis:
 - IFELV
 - Smartfresh
 - Droski
 - CoreOrganic
 - Nutrisorb

Laboratory for the assessment of the quality of fruit and vegetables and equipment:

- | | |
|--|-------------------------------------|
| • Brix | • Atagroupe PR1 refractometer |
| • Acidity | • Metrohm 785 DMP Titramax titrator |
| • Firmness | • Durofel and Firmtech |
| • Antioxidant measurement | • FRAP and DPPH |
| • Texture | • QTS Texture Analyser, Brookfield |
| • Colour | • Konica Minolta chromometer CR400 |
| • Near-infrared spectroscopy (NIRS) | • Portable Phazir |
| • Measurement of ethylene, CO ₂ , O ₂ and flavours | • MPA FT-NIR, Bruker |
| • Storage facility | • GC |
| • Measurement of the quality of pome fruit | • PIMPRENELLE, SETOP |
| • Measurements of fruit production | • Automatic sorter (Greefa) |
| • Photosynthesis measurement | • Licor 6400 |
| • Measurement of water potential | • Pressure chamber |

Laboratory for medicinal plants:

- Hydro-distillation of essential oils
- Microbiological analyses (GT, yeasts, moulds, *E. coli*)
- Extraction of plant DNA
- RAPD
- Microsatellites on *Rhodiola* (since 2012)
- Extraction of rosmarinic acid from balm leaves
- Mucilage

Pathology laboratory: soil analysis:

- Microbiological activity of the soil: FDA analysis
- Counts of different micro-organisms
- Nmin determination: water extract and nitrate electrode
- pH determination: water extract and pH electrode
- Direct identification under microscope (spores, mycelium)
- Indirect identification after isolation on growth media (CGPIM, CMA, Komada, NP10, PARPH, PDA, V8)
- Diagnostics

Pathology laboratory: equipment:

- Microscope
- Binocular magnifier
- Laminar flow
- Microbiological safety cabinet
- Spectrophotometer
- Incubators (3 pcs.)
-

Entomology laboratory

- Determination
- Extraction
- Magnifier, microscope, camera
- Vacuum pump

Cadenazzo laboratory

- Quality analysis of grapes
- Extraction (from plant material, soil, traps, etc.) and preparation of insects
- Identification of insects

- Refractometer
- pH meter (FiveEasy pH FE20 with LE438 electrode)
- Microscope
- Binocular magnifier
- Series of Berlese funnel extractors

Sensory laboratory

- 15 tasting booths

Unique characteristics

- Laboratory for cultures with high added-value, short shelf life and for fresh fruit and vegetables
- Quality:
 - Direct analysis of environmental factors on site
 - Method development with unique equipment: NIRS technology
 - Efficient laboratory for conducting serial analyses (distillation)
- Soil laboratory:
 - Safety level 2 laboratory
 - Efficient and unique for soil pathology
 - Examination in different cultures (greenhouse crops, ornamental plants, small fruit, medicinal plants)
- Sensory laboratory:
 - Laboratory near to harvests: no transport
 - Important parameter in criteria for a varietal comparison (tasting)
 - Results of tastings can be combined with laboratory analyses
- Different laboratories at the centre are a support for acquisition of third-party funds
- The know-how of our special cultures combined with the possibilities for analysis throughout the entire chain: from the field to storage