



**Centro
Interprovinciale
Sperimentazione
Agroambientale
M. NERI
Imola (Bologna)**

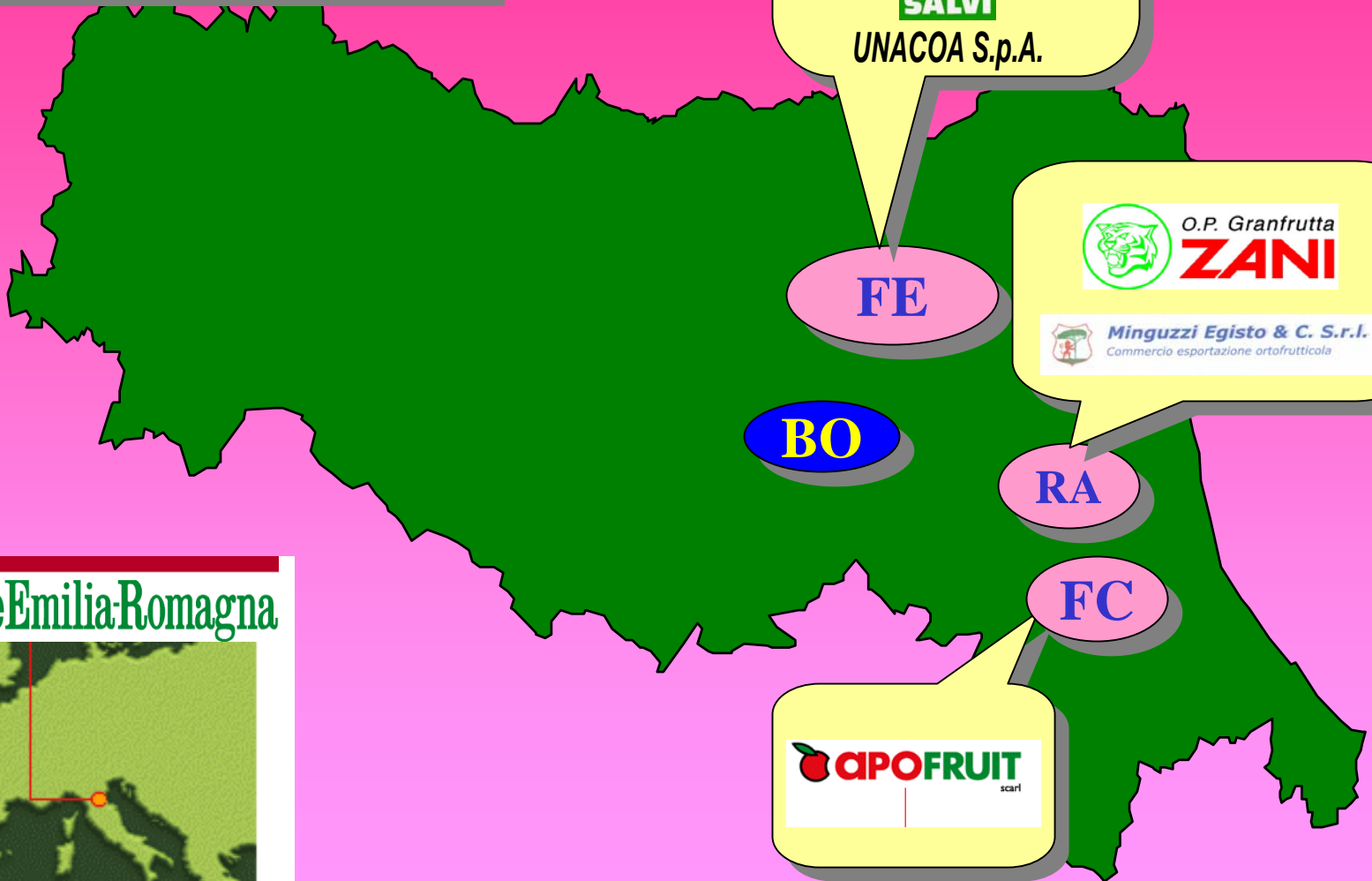
*Lisa Cavicchi
Roberto Colombo*



**Pink Lady® Cripps Pink
production in Emilia
Romagna region**



Orchards evaluated in Emilia-Romagna



Regione Emilia-Romagna





Production in Emilia-Romagna

Age of planting(%)

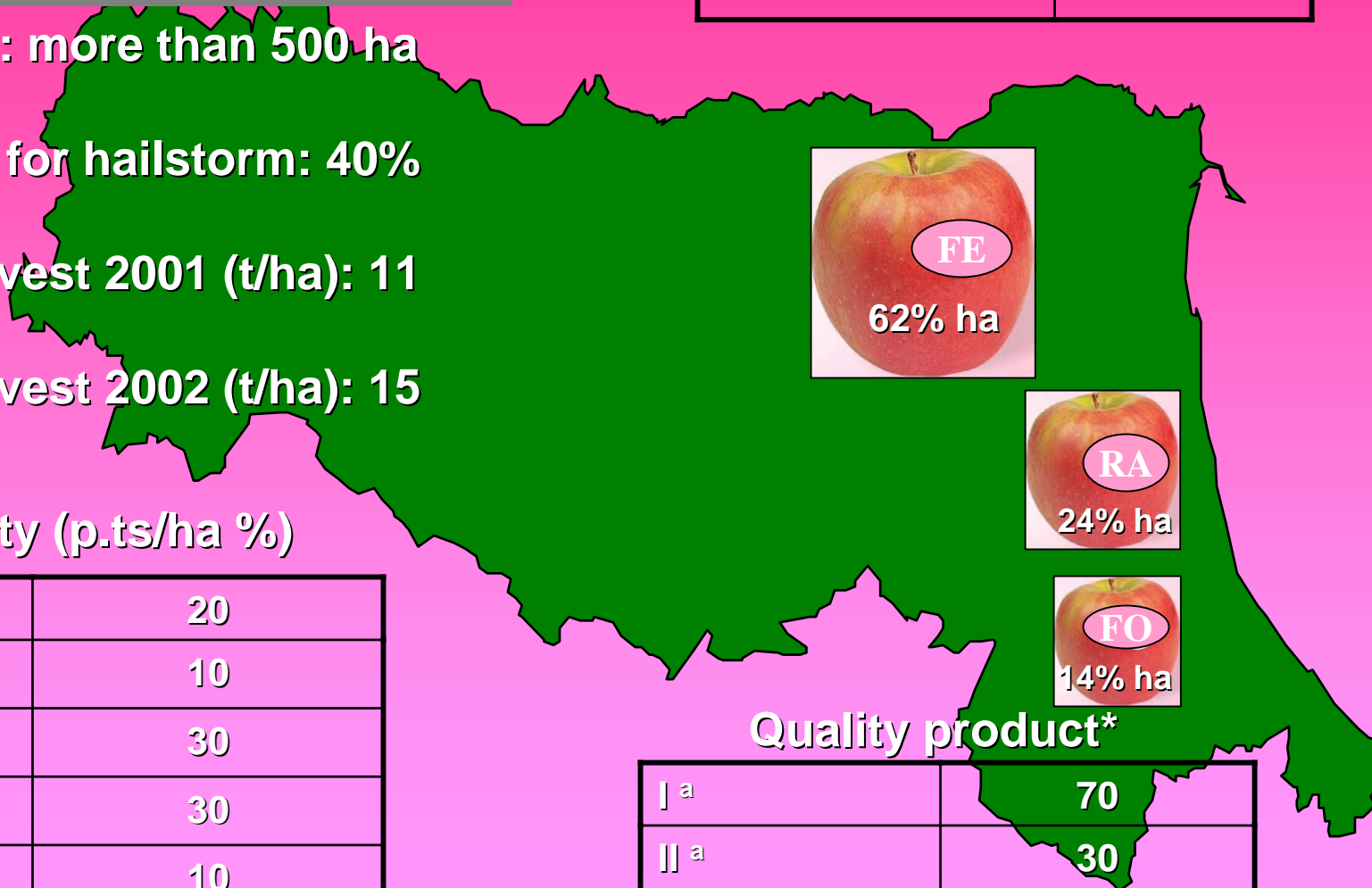
1 ^a - 2 ^a leaf	41
3 ^a - 4 ^a leaf	43
5 ^a leaf and over	16

Orchards: more than 500 ha

Covering for hailstorm: 40%

Mean harvest 2001 (t/ha): 11

Mean harvest 2002 (t/ha): 15



Plant density (p.ts/ha %)

< 2000	20
2000-2500	10
2500-3000	30
3000-3500	30
>3500	10

Quality product*

I ^a	70
II ^a	30

* Mean two years



Trials

Year 2001-2002

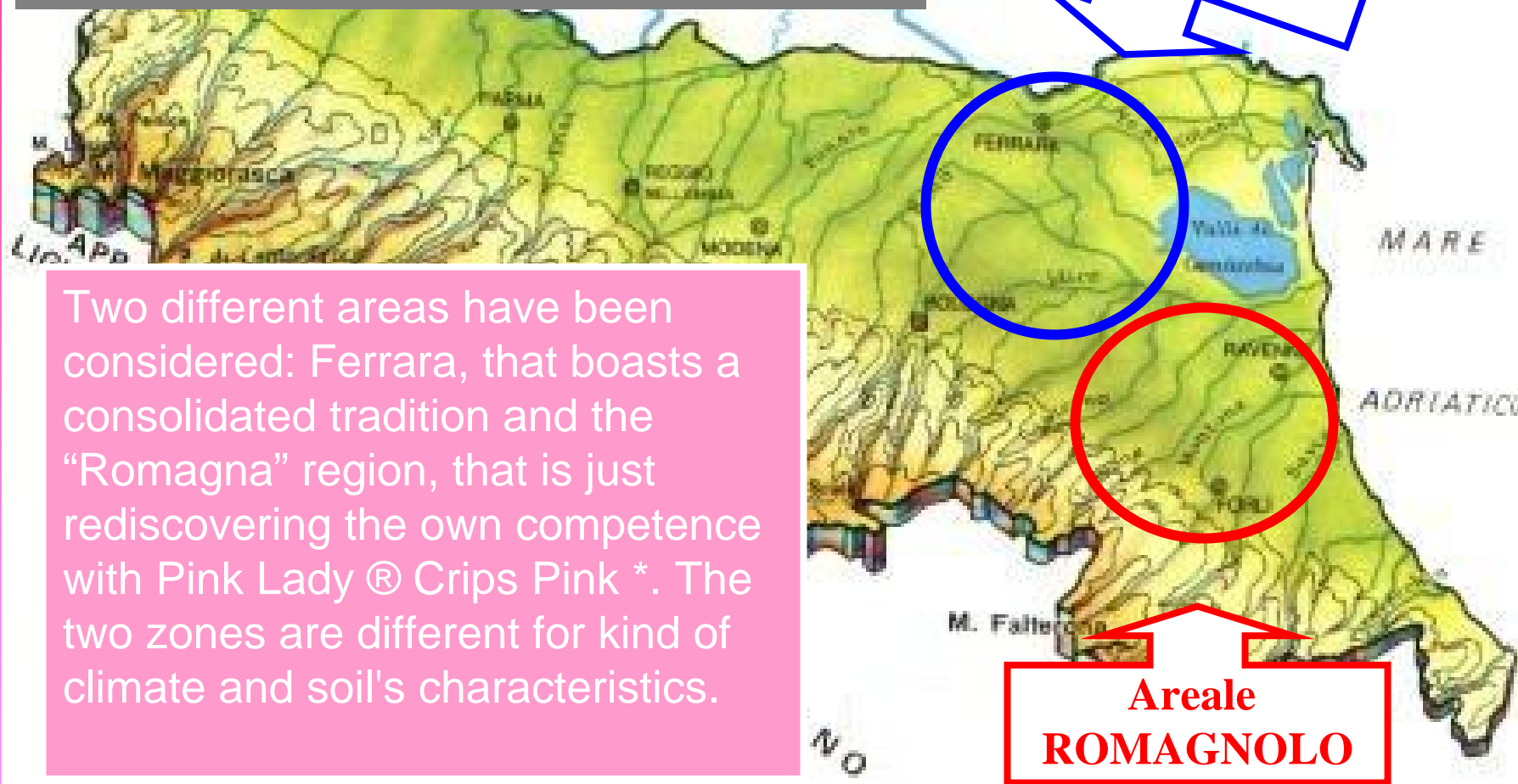
Quality investigation in different areas

Year 2002-2003

Study on sensibility to internal browning of the fruits of Pink Lady ® Cripps Pink in relationship to different origins and different storage techniques



Quality investigation in different areas



Two different areas have been considered: Ferrara, that boasts a consolidated tradition and the “Romagna” region, that is just rediscovering the own competence with Pink Lady® Crips Pink*. The two zones are different for kind of climate and soil's characteristics.



Quality investigation in different areas

Instrumental and sensory

- **Chemical and physical analyses: skin color, firmness, soluble solids, pH, titratable acids**
- **Sensory : triangular test, quantitative descriptive analysis (trained panel, 12 assessors)**



**Indagine qualitativa nelle zone
di produzione
Selection and training of
assessors**

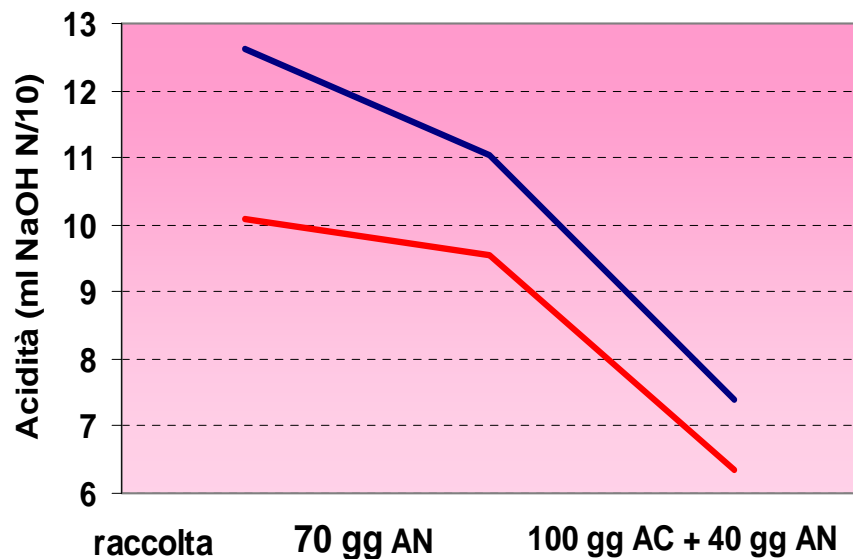
- **matching test**
- **test for detection of a stimulus**
- **test for discrimination between levels of intensity of a stimulus;**
- **odour and texture description test;**
- **training in the use of scales;**
- **rating and scoring.**



Quality investigation in different areas

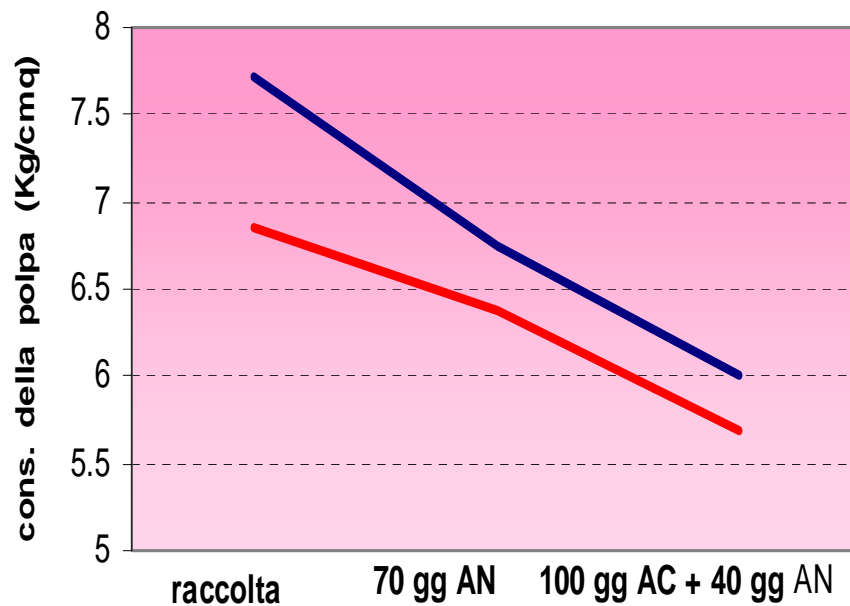
Post harvest evaluation

Evoluzione dell'acidità dei frutti



Forlì -----
Ferrara -----

Evoluzione della consistenza della polpa



CISA M.Neri - Imola



Quality investigation in different areas

Sensory profile

sweetness

richness of aroma

sourness

persistence

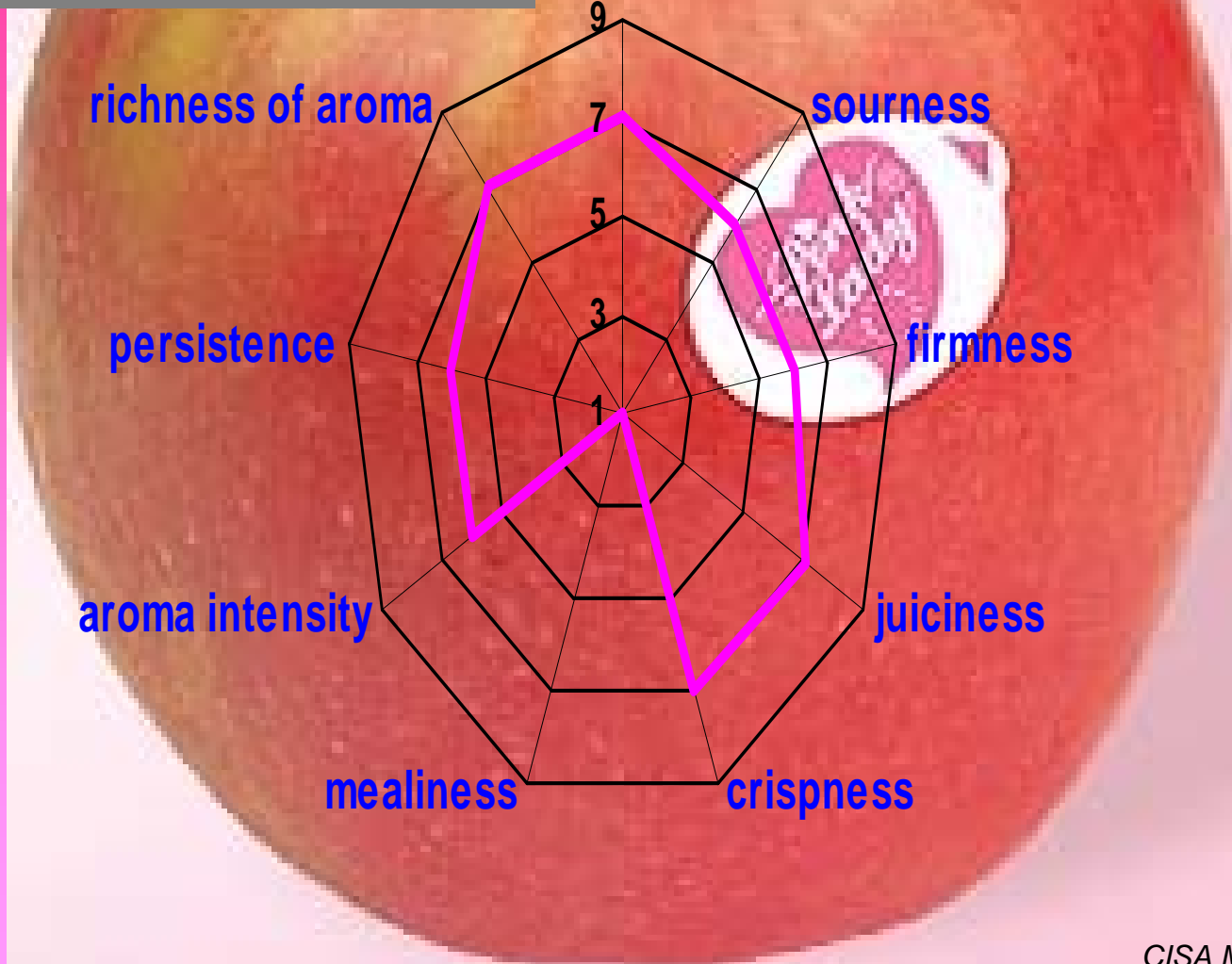
firmness

aroma intensity

juiciness

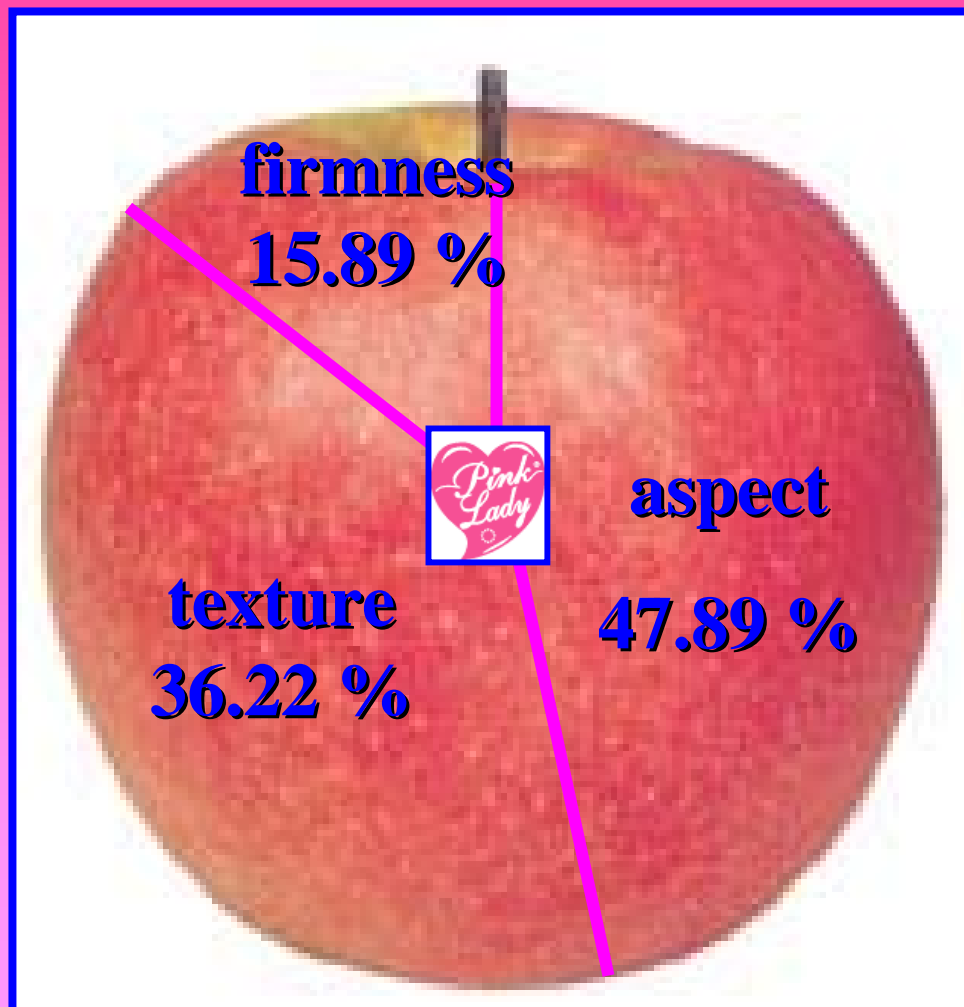
mealiness

crispness





Quality investigation in different areas Main features





Quality evaluation in different areas conclusion

- Organoleptic characters: very good crispness and firmness, constant during storage period, particularly attractive aspect.



**2002 – 2003
trials**

**Study on sensibility to internal browning of
the fruits of Pink Lady® Cripps Pink in
relationship to different origins and
different storage techniques.**



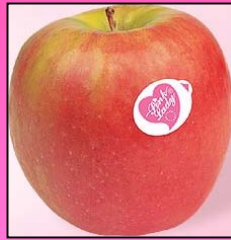
Methods

Trading experience



Forlì

2 areas



Ferrara

3 different techniques of maintenance in CA



CA1
4 months

CA 2
2 months

CA 3
4 months

Periodic evaluation

Lab experience



Forlì

2 areas



Ferrara

IVTPA – Milano –
2 different techniques of maintenance in CA

CO ₂	0.8 %
O ₂	1.2 %
T	1.0 °C
UR	90 %

CO ₂	3.0 %
O ₂	2.2 %
T	1.0 °C
UR	90 %

Long time storage



Trading experience

Ferrara

Orchard's age	4
Density (p.ts/ha)	3200
Harvest time	29 ott.
firmness (kg/cm)	7.98
RSR (°Brix)	14.1
Acidity	9.18
ph	3.70
Color L	74.29
Color a*	-11.83
Color b*	42.82

Forlì

Orchard's age	4
Density (p.ts/ha)	2800
Harvest time	28 ott.
firmness (kg/cm)	8.74
RSR (°Brix)	15.8
Acidity	13.62
ph	3.44
Color L	70.44
Color a*	-6.29
Color b*	43.62



Trading experience: storage conditions



CA 1

CO ₂	1.1 %
O ₂	1.5 %
T	1.5 °C
UR	90 %



CA 2

CO ₂	2.2 %
O ₂	2.0 %
T	1.0 °C
UR	90 %



CA 3

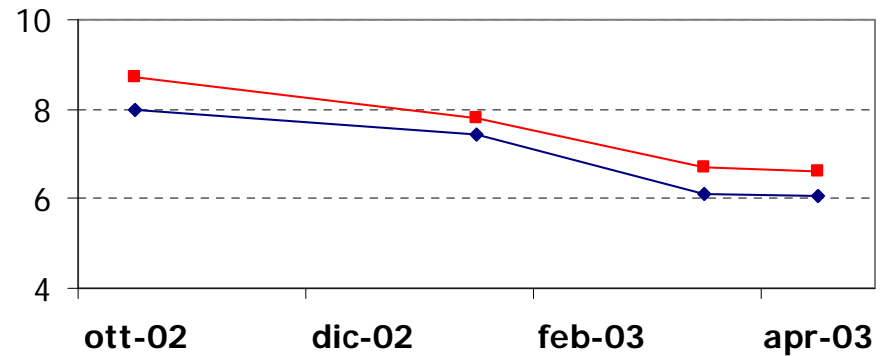
CO ₂	1.5 %
O ₂	2.2 %
T	1.5 °C
UR	92 %



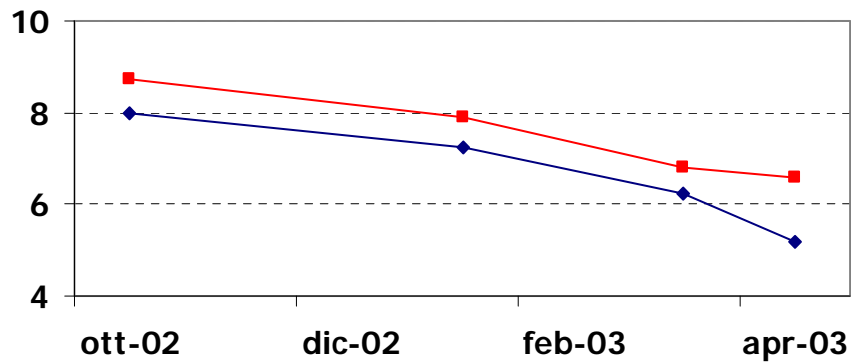
Storage firmness

- Forlì (Romagna)
- Ferrara

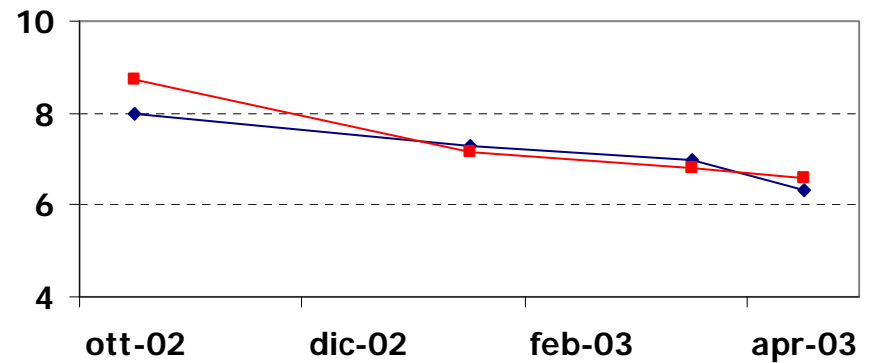
CA 1



CA 2



CA 3

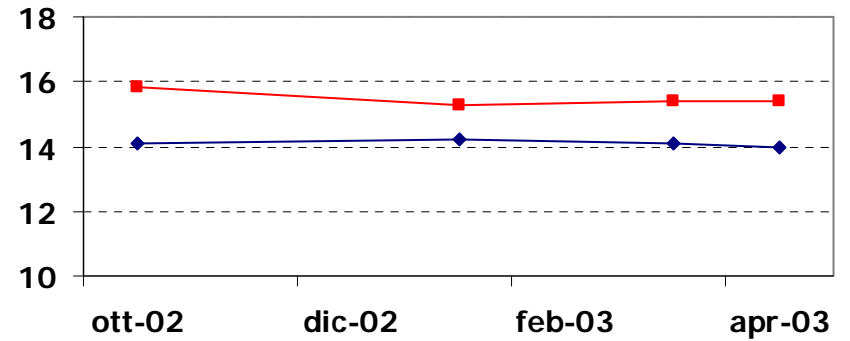




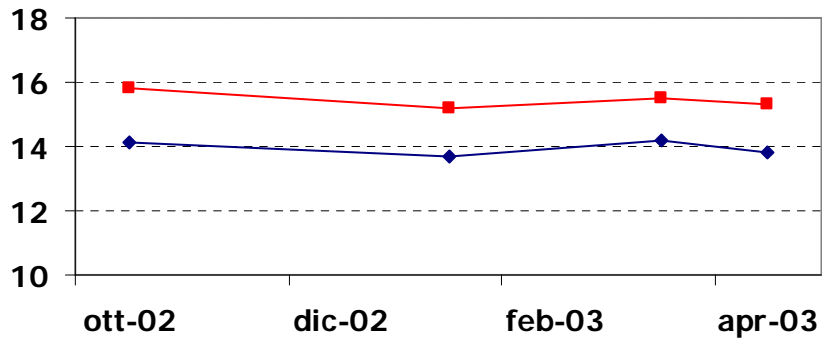
Storage R.S.R. (°Brix)

- Forlì (Romagna)
- Ferrara

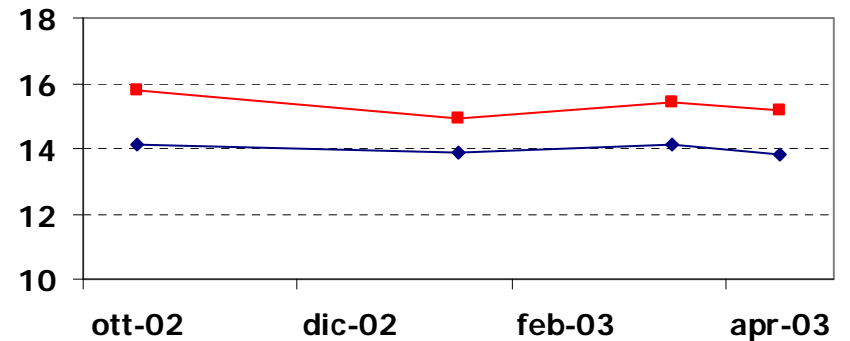
CA 1



CA 2



CA 3

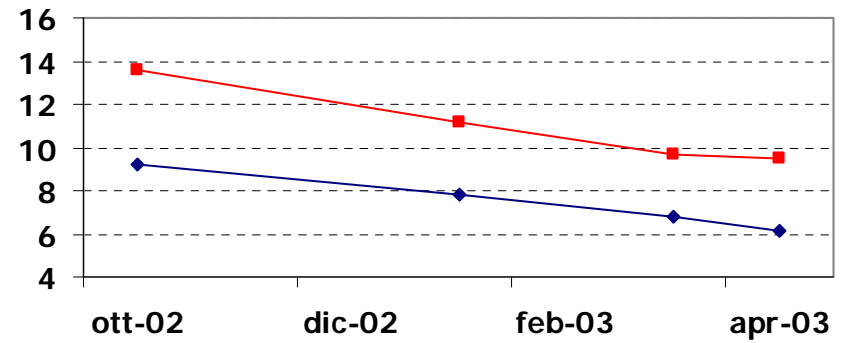




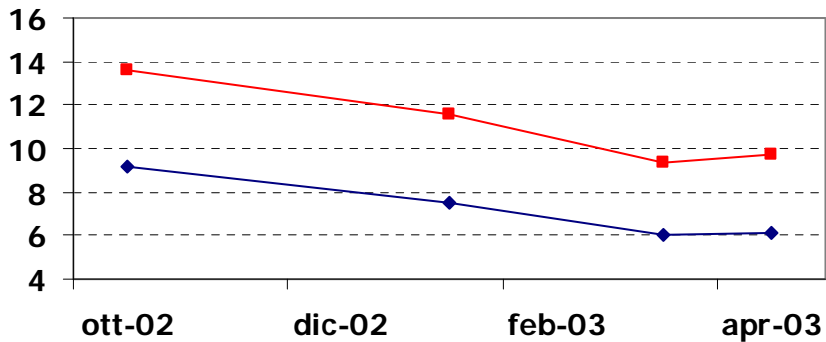
Storage acidity (meq/100 ml)

- Forlì (Romagna)
- Ferrara

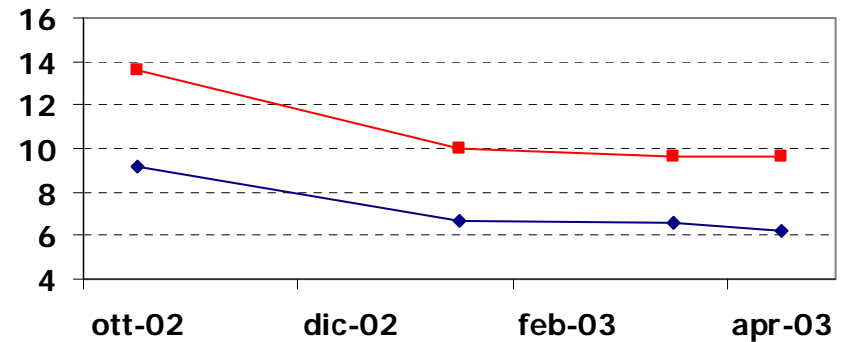
CA 1



CA 2



CA 3



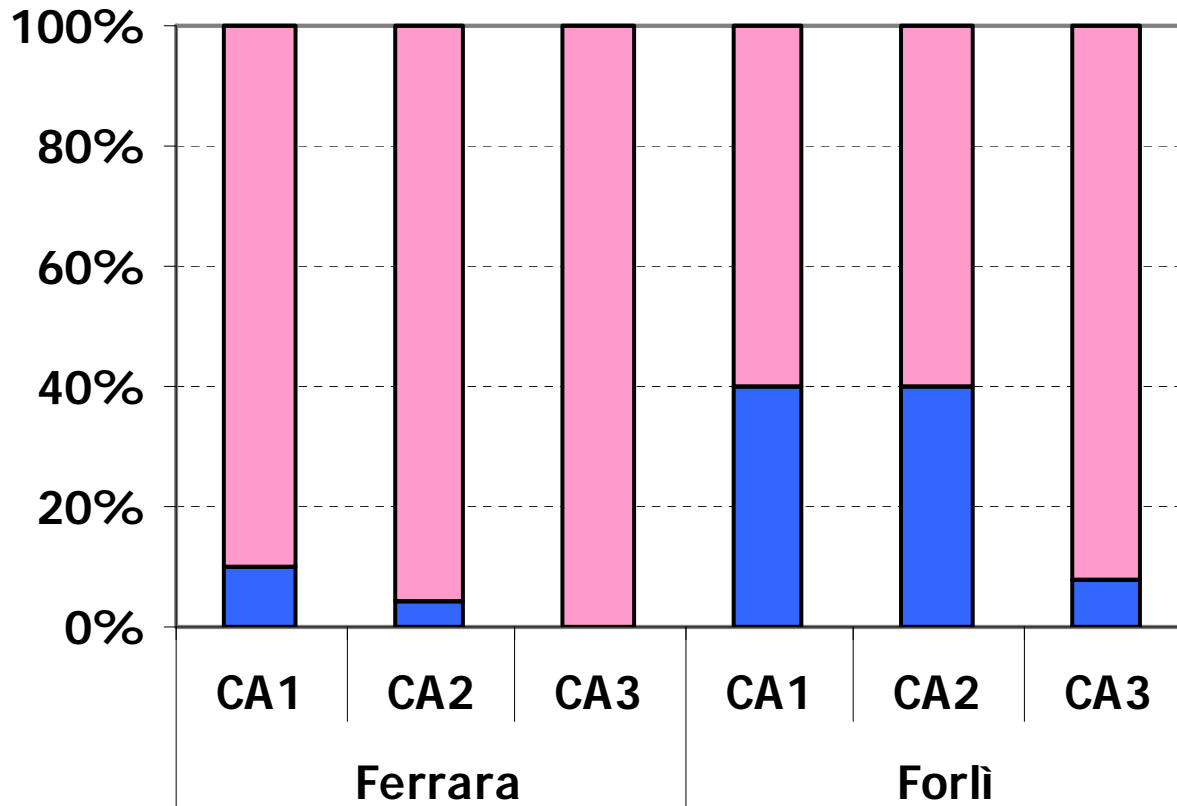


Control

Test Ac1 and Ac3 4 month AC + 2 month AN

Test Ac2, 2 month AC + 4 month AN

Evaluation effected after shelf-life (7 days at 20°C)



■ fruit not damaged
■ fruit damaged





Internal browning

Forlì CA 1



Forlì CA 2





Internal browning

Ferrara CA 1



Ferrara CA 2





Remarks

- During the harvest fruits coming from Forlì appeared in state of more advanced maturation in comparison to the product coming from Ferrara; instrumental analysis underlines in fact skin was color more yellow than the others.
- Time of storage in CA has been established by the companies of reference;
- Controls on fruits effected after a short CA (2-3 months) and middle term (4-5 months) have not underlined internal browning;
- Fruits coming from Forlì have shown tendency to become greasy at the end of “shelf-life” (7 days to 20°C);



Remarks

- Controls effected in May have shown a greater tendency to internal browning in apples coming from Forlì;
- Among the 3 CA conditions, CA3 seems to reduce internal browning; contrarily the worse one is CA1
- The best arrangement seems to be Ferrara apples in CA3;
- CA3 conditions reduce internal browning in Forli apples too;
- Late harvest period seems to increase internal browning