

**European Bio-dynamic meeting
Taucha (D) 25-27 july 2014**

**Byodinamics experiens in north Italy (Verona):
horticulture, fruit-growing and vine.
*Agricultural and socials effects***



ADRIANO ZAGO
DOTT. AGRONOMO ED ENOLOGO
AGRICOLTURA BIODINAMICA



Historical and geographical context

- Verona's district: what about agriculture

- Long history about biological farmers (since '70)

- Big and historical organic cooperatives (Primavera, Ca magro etc)

- Big interests local industrial farming and industry food (Veronesi, Aia, big wine coop etc)



GAB: Gruppo Arena Biodinamica (Biodynamic Verona Farmers group)

Farmers from organic to
biodynamic

Focus group:

- Learning and formation
action in BD
- Correct use and
autoproductions BD
preparations
- Increasing social dynamic





Gruppo Arena Biodinamica

What we produce on this group

The first bd's practical actions in 2011:
courses and first dynamisations

Actually, on the grup there, are 162 ha where we
use bd preparation, compost and others bd's
actions

Horticultural crops screen house 22 ha

Horticultural crops on field 14 ha

Vines 40 ha

Apple and pears 27 ha

Cerry 2 ha

Peach 40 ha

Horticultural focus

The horticultural crops where we're we making more effort about bd's preparation test are:

Tomatos
Pepper
Salad
Aspargus
Strawberries
Melon
Broccoli

Social aspects

Technical education itinerant on the different farm

Application BD's preparation on group

Setting-up BD's preparation (500, 500P, fladen and 501) on group

Reciprocal visits in the different farms any 1,5- 2 months (!)

Many action about active perceptions, blind tasting products etc

Dinner at every meeting, discussion, study tours





















Technical aspects: benefits

Buying common technical equipment (es dyn., spry machine, composting machine)

Sharing info about: variety test, spry products, manuring etc.

Autoproduction BD's prep. and spryng prep. by the group.

Economical benefit about: consultant, marketing actions, educational actions,

Sensory testing group, observations of the behavior of plants

Certification Demeter

Technical aspects: problems

The result doesn't come all the time (!)

The plant protection aspects some time are more important than BD's aspects

Forgetfulness and management of BD's test

The participation in the meetings of the group is difficult, by the crops and wife...(!)

There are not public research and neither other similar initiatives in order to compare.

Hi miss Demeter...can you here me....?!



Test 501 effects on Pepper (yellow and red):
vegetative behaviour.

Farm: Azienda agricola Perina Daniele,
Verona Summer 2011 and 2013



ADRIANO ZAGO

DOTT. AGRONOMO ED ENOLOGO

AGRICOLTURA BIODINAMICA



Daniele Perina's farm

- Horticultural farm in organic agriculture since 2001
- Sandy soils, typically from the Verona's area plane.
- Surface: 7 ha vegetable production in greenhouses and 3 ha on the field
- Main productions: salad, broccoli summer variety, kohlrabi, tomatoes, capsicum,
- Green manure regularly included on the estate's rotations.
- Regular use of green manure and biodynamic compost, composted in farm.

Daniele Perina's Farm.

About BD's prep. In pepper

- Meccanical dynamization (homemade), 240 lt, good well water, heating 37 °C, 4 gr/ha SO1 (From Le Madri and GAB).
- Mechanical sprying of prep SO1 in all surface, except the tunnels test
- 3 sprying SOO1:
 - 1 when the first fruits are at list 5 cm
 - 1 4-6 weeks after
 - 1 4-6 weeks after
- Feedback: shape of the leaves, flower, fruits. Tasting fruits.



Time for the first's 501





SI 501



NO 501





SI 501



NO 501







Time for the third's 501

NO 501



SI 501





SI 501



NO 501







SI 501



NO 501

Daniele Perina's Farm: results and effects

- Arrangement in space of the plant so significantly different, modifications to the architecture of the plant
- The apex of the leaves are turned upwards in the thesis S01.
- the leaves show a direction and a curvature substantially significant in the thesis with S01, the entire plant is greater astrality
- S01 with the fruits have a stronger taste of green pepper, are more savory and less bitter aftertaste



Test 501 effects on Tomato:
vegetative behaviour and fruit taste.

Farm: Azienda agricola Lorenzo
Bonadiman and Perina Daniele,
Verona 2011, 2012, 2013, 2014





Daniele Perina's farm

- Horticultural farm in organic agriculture since 2001
- Sandy soils, typically from the Verona's area plane.
- Surface: 7 ha vegetable production in greenhouses and 3 ha on the field
- Main productions: salad, broccoli summer variety, kohlrabi, tomatoes, capsicum,
- Green manure regularly included on the estate's rotations.
- Regular use of green manure and biodynamic compost, composted in farm.



Daniele Perina's farm

- Horticultural farm in organic agriculture since 2008, before was an organic fruit grower
- Sandy soils, typically from the Verona's area plain.
- Surface: 4 ha vegetable production in greenhouses and 3 ha on the field
- Main productions: melon, tomato, salad, cucumbers, fennel, pepper.
- Green manure regularly included in the estate's rotations.
- Regular use of green manure and biodynamic compost, composted on farm.

Daniele Perina's and Lorenzo Bonadiman's Farms.

About BD's prep. In pepper

- Meccanical dynamization (homemade and Ecodyn), 240 lt and 120 lt, good well water, heating 37 °C, 4 gr/ha 501 (From Le Madri and GAB).
- Mechanical spraying of prep 501 in all surface, except the tunnels test
- 3 spraying 501:
 - 1 when the first fruits are at list 5 cm
 - 1 4-6 weeks after











Different varieties:
Cerry tomato



Different varieties:
Cuor di bue



Different varieties:
Tondo a Grappolo





NO SO1



SI SO1

NO 501



SI 501





NO SO1

SI SO1



NO 501



SI 501



NO 501



SI 501



NO 501



SI 501



NO 501



SI 501



NO SO1



SI SO1



NO S01



SI S01



Daniele Perina's and Lorenzo Bonadiman Farms: results and effects

- The plants with the 501 are more ordered, with less voids and better distribution of leaf area
- The leaves and the apex of the test 501 have a marked assurgenza upwards, and a minor downward inclination. References to the tips of the leaves.
- The flowers have petals in 501test much more open and inclined towards the back showing a large tension and

Daniele Perina's and Lorenzo Bonadiman Farms: results and effects

- In the case of the cherry tomato ripening of the fruit is advanced by about 7 days. no change in the other cases
- Bonadiman farm in the greenhouses of the 501 cherry tomato with the environment was less humid, more enjoyable and less odor of tomato in the air. Repeated experience with more people.
- In general in the various tests 501 the tomatoes are

ADRIANO ZAGO

DOTT. AGRONOMO ED ENOLOGO

AGRICOLTURA BIODINAMICA





Test SOOP effects on salad's development
roots and salad's taste.

Farm: Azienda agricola Paolo
Fontanabona,
Verona marzo 2012



ADRIANO ZAGO

DOTT. AGRONOMO ED ENOLOGO

AGRICOLTURA BIODINAMICA

Paolo Fontanabona's Farm

- Horto-frutticultural farm in organic agriculture since '80 (Paolo's Father)
- Sandy soils, typically from the Verona's area plane.
- Surface: 6 ha vegetable production in greenhouses, 4 ha kiwi
- Main productions: salad, celery, fennel, cabbage.
- Regular use of green manure and biodunamic compost, composted in farm.
- BD's prep since 2011 in all production on field and on pot.

Paolo Fontanabona's Farm. About BD's prep. in the salad

- Meccanical dynamization (Ecodyn), 60 lt, spring water, heating 37 °C, 100 gr 500P/h (From Le Madri).
- Manual spraying of prep 500P in all surface, except the tunnels test
- 3 spraying 500P:
 - 1 the soil,
 - 1 one the small pot on the organic nursery
 - 1 on the small plants-pot on the days before transplanting
- Feedback: on the soil structure, root developpement, tasting

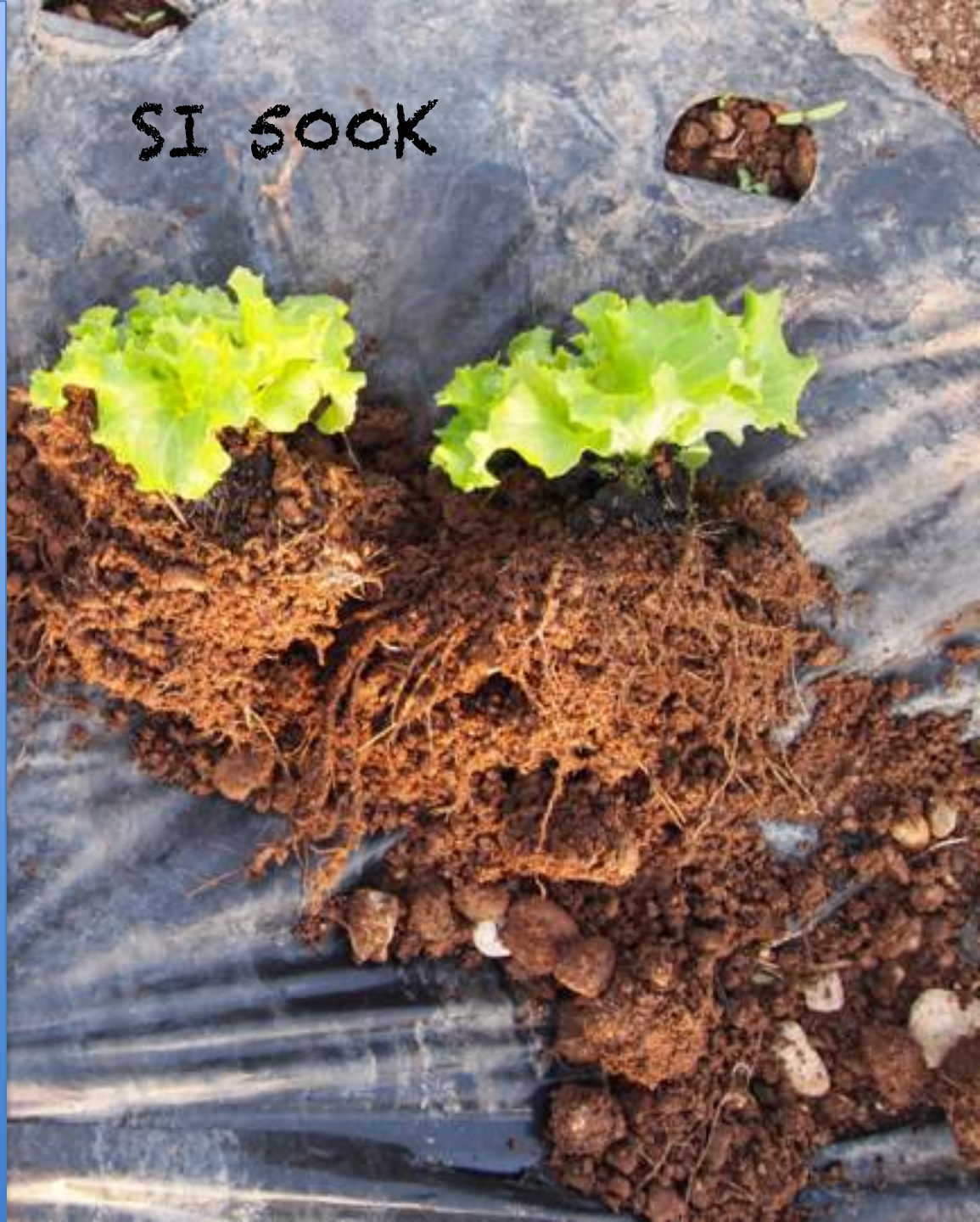




NO SOOK



SI SOOK



Tesi NO SOOK



Tesi SI SOOK



NO SOOK



SI SOOK



Paolo Fontanabona Farm: results and effects.

- More roots are presents in terms of vertical and horizontal developping. Interesting development of secondary roots
- The soil, on 500P test, are more structured and many fine particles are attached to the root exudates.
- The soil is more braun and dark, the organic substance is in different.
- Soil smell of well-decomposed organic matter (sentory forest)
- Salad taste pour salty. less green and on the 500K test. the

ADRIANO ZAGO

DOTT. AGRONOMO ED ENOLOGO

AGRICOLTURA BIODINAMICA



Test S00P effects on Broccoli summer
variety's development roots.

Farm: Azienda agricola Perina Daniele,
Verona June 2012



ADRIANO ZAGO

DOTT. AGRONOMO ED ENOLOGO

AGRICOLTURA BIODINAMICA





Daniele Perina's farm

- Horticultural farm in organic agriculture since 2001
- Sandy soils, typically from the Verona's area plane.
- Surface: 7 ha vegetable production in greenhouses and 3 ha on the field
- Main productions: salad, broccoli summer variety, kohlrabi, tomatoes, capsicum,
- Green manure regularly included on the estate's rotations.
- Regular use of green manure and biodynamic compost, composted in farm.

Daniele Perina's Farm.

About BD's prep. in the broccoli summer variety.

- Meccanical dynamization (homemade), 240 lt, good well water, heating 37 °C, 100 gr 500P/ha (From Le Madri).
- Manual sprying of prep 500P in all surface, except the tunnels test
- 3 sprying 500P:
 - 2 on the soil (1 month distnace each others),
 - 1 on the small plants-pot on the days before transplanting
- Feedback: on the soil structure, root developpement, tasting







NO SOOK

SI SOOK



SI SOOK

NO SOOK

SI SOOK

NO SOOK





NO SOOK

SI SOOK

Tasting broccoli from members group
and buyers



Quality is not just a word


Daniele Perina Farm: results and effects.

- On the SOOP test the roots are more developed in all directions
- The finest roots (and more interesting) are more developed on the SOOP test. Same consideration for the soil: more fine structure.
- The roots present a characteristic smell of broccoli more intense on the SOOP test.
- The broccoli on the SOOP test result more salty, less bitter and more pleasant.

ADRIANO ZAGO

DOTT. AGRONOMO ED ENOLOGO

AGRICOLTURA BIODINAMICA



Test 501 effects on Asparagus:
vegetative behavior

Farm: azienda agricola Marco Filippi,
Oppeano (VR) aprile 2012



ADRIANO ZAGO

DOTT. AGRONOMO ED ENOLOGO

AGRICOLTURA BIODINAMICA





Marco Filippi's farm

- Organic farm since 2002, spec. in horticultural productions
- 3 ha tot. Surface. 0,5 ha screenhouse 2,5 field.
- All vegetable production is finalized to direct sales and processing in the farm for the farm restaurant (agriturismo bio).
- 0,5 ha asparagus, many different vegetables are cultivated for the direct sell
- Green manure regularly included on the estate's rotations.
- Regular use of green manure and biodynamic compost, composted in farm

Marco Filippi's Farm.

About BD's prep. in the asparagus.

- Mechanical dynamization (Montanari), 30 lt and manual dynamization, good well water, 37 °C, 4 gr/ha 501 (From Le Madri)
- Manual spraying of prep 501, except 2 rows asparagus for the no 501 test.
- 1 Application 501 near too flowering asparagus
- Feedback: we observed the architecture's plant



Grup GAB at work: manual and mechanical dynamisation



NO 501

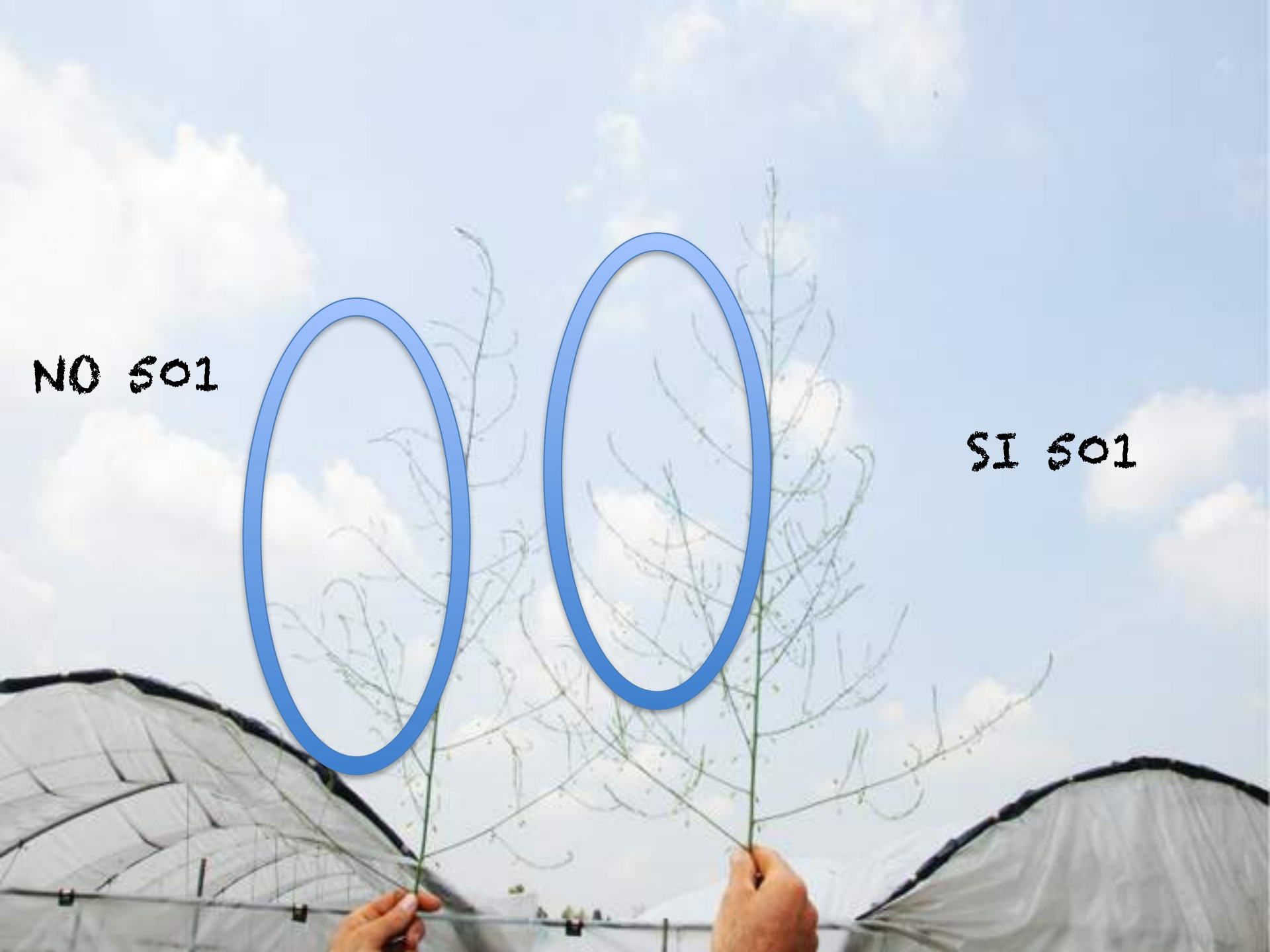
Tesi SI 501



NO S01

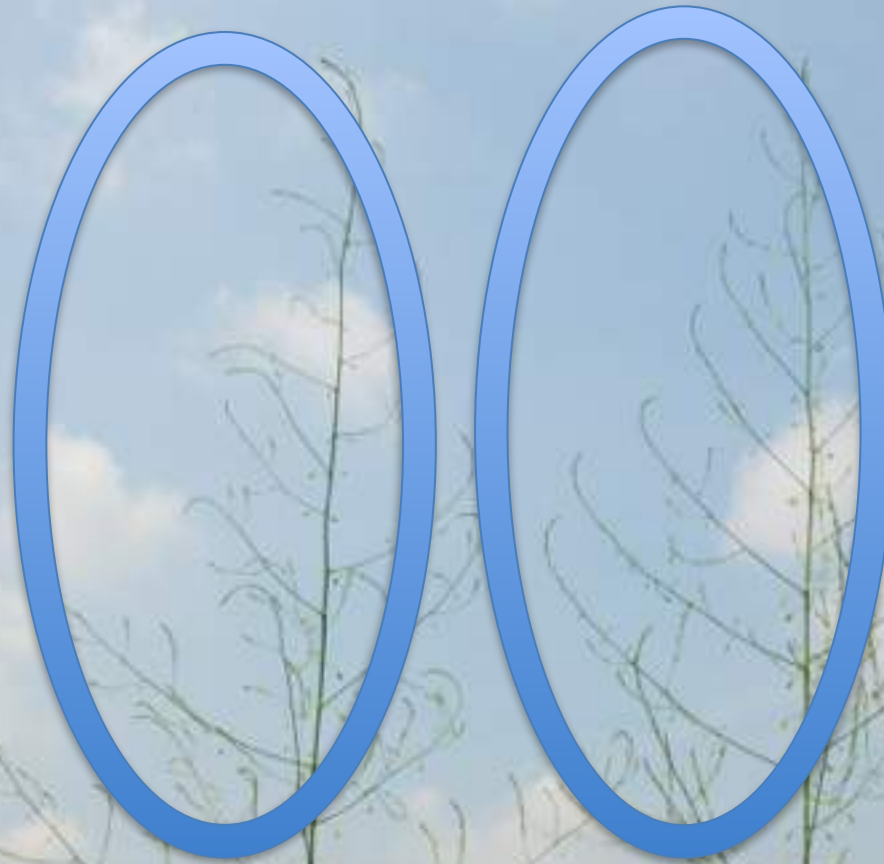


SI S01



SI 501

NO 501



Marco Filippi's Farm: results and effects

- The SO1 has generated a complete reorganization of the architecture of the plant
- All the apex of the test SO1 are facing upwards. Increased tension of the plant to the element of air
- Have not been realized tests no differences about taste and smell

ADRIANO ZAGO

DOTT. AGRONOMO ED ENOLOGO

AGRICOLTURA BIODINAMICA



Example of the effect of SO₂ in vine plant

(2 applications on 2014's spring, Ampelia's estate, south of Tuscany)



ADRIANO ZAGO

DOTT. AGRONOMO ED ENOLOGO

AGRICOLTURA BIODINAMICA

NO 501



SI 501



NO 501



SI 501



NO SO1



SI SO1



NO SO1

SI SO1





500 and 501 in vegetables: look at the different experiences

Vegetables	Repetitions	Repetitions	parts of the plant	type of effect
Tomato	(2)	3	Plant, Flowers, Friuts, leaves, hambient.	architecture smell
Pepper	(2)	3	Fruits, plant leaves	architecture
Celary	2	2	Found no effect	-
Broccoli	3	(1)	Roots, Fruits	Taste, soil
Apple	(2)	3	Fruits leaves	Color purfum
Melon	(2)	2	Fruis	Harvest index
Asparagus	(2)	1	Plant	architecture
Strawberry	(2)	3	Fruits, leaves flowers	Taste
salad	2-3	(1)	roots	Taste soil



Grazie mille!

For more info and
contacts:

www.adrianozago.eu