

# Meeting Vila Real 10.10.2018



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# MAIN CHARACTERISTICS OF THE ORIENTAL CHESTNUT GALL WASP *DRYOCOSMUS KURIPHILUS*

DK native to China was introduced accidentally in Italy. Damage is caused by the galls, abnormal growths of plant tissue during spring, more or less rounded-shaped localized on the leaves tissues and the new buds of the plant. Galls interfere with the normal growing of the plant, reducing fructification and causing a gradually decay of chestnut tree. Asian chestnut gall wasp larvae develops inside of the galls.

# MAIN CHARACTERISTICS OF THE ORIENTAL CHESTNUT GALL WASP *DRYOCOSMUS KURIPHILUS*






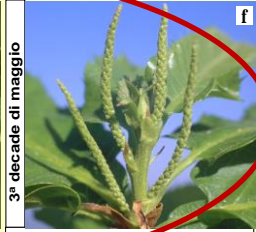









Biological control is the only way for a concrete beneficial effect. For achieving the control, the strategy is to introduce the natural enemy, *Torymus sinensis* Kamijo, of the Asian chestnut gall wasp in the chestnut areas. The larvae of the beneficial insect *T. sinensis* feeds on Asian chestnut gall wasp larvae reducing the spread of parasite population.

# MAIN CHARACTERISTICS OF THE ORIENTAL CHESTNUT GALL WASP *DRYOCOSMUS KURIPHILUS*

This kind of biological control do not have contraindications. However, to obtain a concrete result after the introduction of the beneficial insect *T. sinensis*, at least 6-8 years must pass to appreciate an effective reduction of the number of galls on chestnut trees.

WHEN?

# PHENOLOGICAL STAGES OF *CASTANEA SATIVA*

Stadi fenologici		
 Inverno Gemma mista in riposo	 aprile Gemme miste gonfie	 1ª decade di aprile Foglie evidenti
 fine aprile Caduta perule	 2ª decade di maggio Comparsa amenti	 3ª decade di maggio Amenti in accrescimento
 2ª decade di giugno Fiori femminili e maschili maturi	 2ª decade di giugno Amento in piena fioritura	 3ª decade di giugno Fiori femminili in piena antesi
 3ª decade di giugno Fine fioritura	 inizio di luglio Allegagione	 agosto Ingrossamento ricci
 inizio di ottobre Inizio deiscenza riccio	 ottobre Apertura del riccio	 ottobre/novembre Caduta dei frutti

# HOW?

## INSTRUCTIONS FOR THE RELEASE OF *T. SINENSIS*

Keep insects in a fresh environment until the release (not leave them on the car dashboard or in bright sunshine). Once reached the release location, wait a few minutes that insects get used to the surrounding temperature (they will start moving faster). At this point the release can take place.





## HOW AND WHERE?

### INSTRUCTIONS FOR THE RELEASE OF *T. SINENSIS*

Follow these operational steps:

1. Identify a plant branch or root sprouts with the presence of new galls (just formed), preferably in a lower part or easily to reach to allow you work comfortably.
2. Open the tubes.
3. Point the open part of the tube upwards so that insects can exit spontaneously.



## HOW?

### INSTRUCTIONS FOR THE RELEASE OF *T. SINENSIS*

4. To accelerate the exit of the remaining insects bring the tube near the galls or leaves and, holding the tube firmly with one hand, by gentle tapping with the other hand facilitate the exit of the last insects inside the tube. Do not worry if some insects fall down: they can fly and reach the galls alone.





## HOW?

### INSTRUCTIONS FOR THE RELEASE OF *T. SINENSIS*

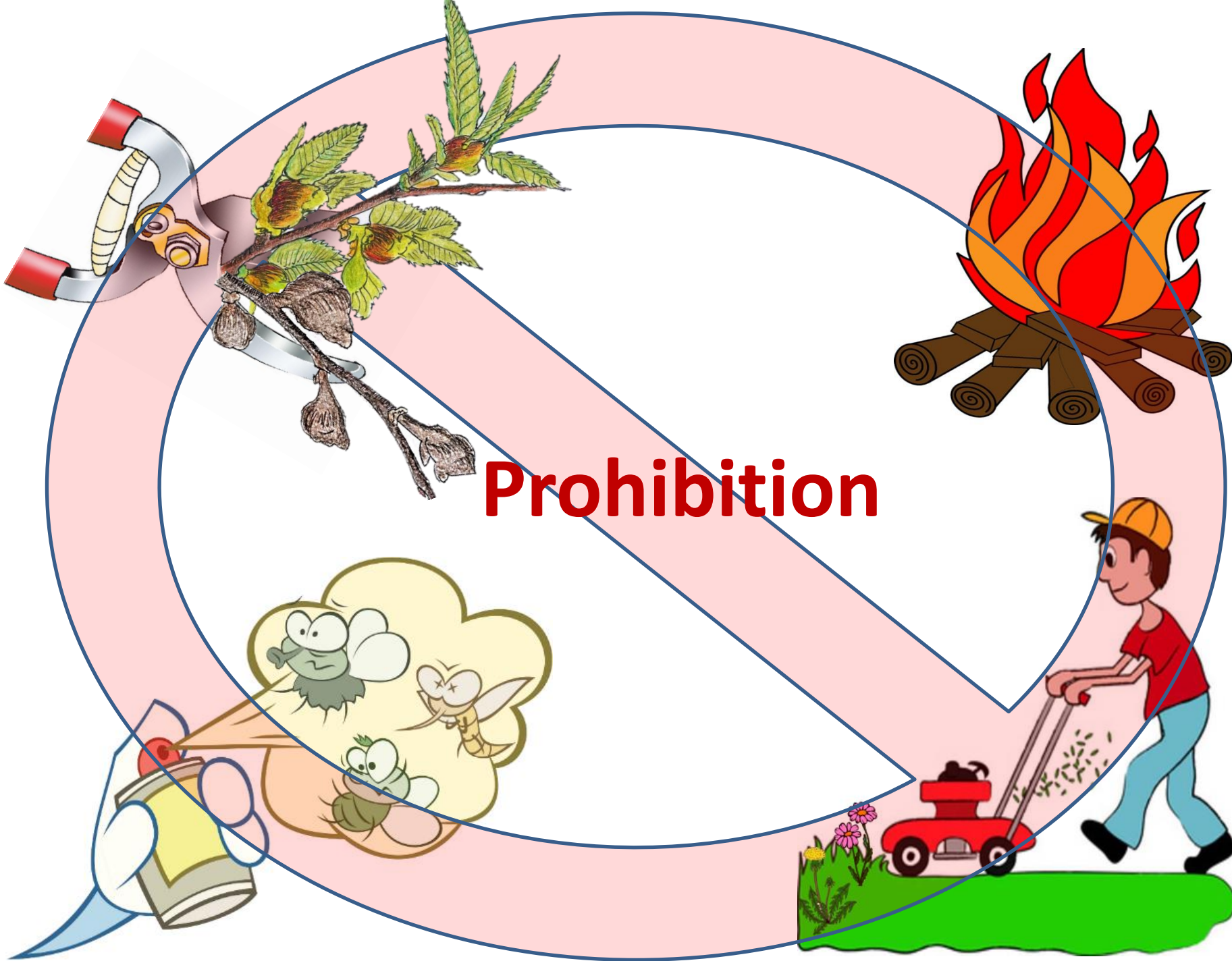
5. For each release, liberate all insects in a 50 square meters area in a single plant or maximum on three neighbouring trees. Do not disperse the release far away from each other chestnut trees to attempt to cover a wider area: the risk is to compromise the settlement of *T. sinensis* and the success of the operation. Over time, the insect will cover the entire area.



# **CONSIDERATIONS FOR A GOOD MANAGEMENT OF CHESTNUT ORCHARDS**







## BEST PRACTICES AFTER THE RELEASE

Management of the soil fertility: it is important to preserve a good amount of organic substance in chestnut soils so that the plants can have a good available quantity of nutrients.

Pruning management: to guarantee a good vigour of the plants it is appropriate removing perishable and dry parts of the canopy. **Trees where *T. sinensis* has been released and nearest plants must not be pruned for at least two years.**

## BEST PRACTICES AFTER THE RELEASE

- **do not destroy the winter pruning waste before the end of June:** the galls, on pruned branches, have inside the larva or pupa of beneficial insect *T. sinensis*, therefore their elimination before that date reduce its presence. Pruning waste can be collected in swaths or piles and removed or destroyed later.



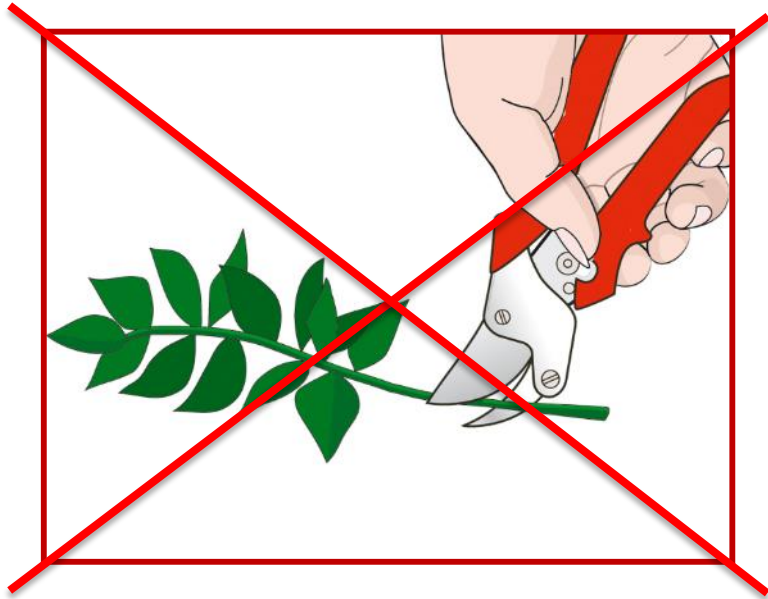
# BEST PRACTICES AFTER THE RELEASE



## WINTER PRUNING

It is allowed; do not remove but keep all the pruned branches until the end of June, in order to allow the emergence of *T. sinensis* diapausing individuals

# BEST PRACTICES AFTER THE RELEASE



## GREEN PRUNING

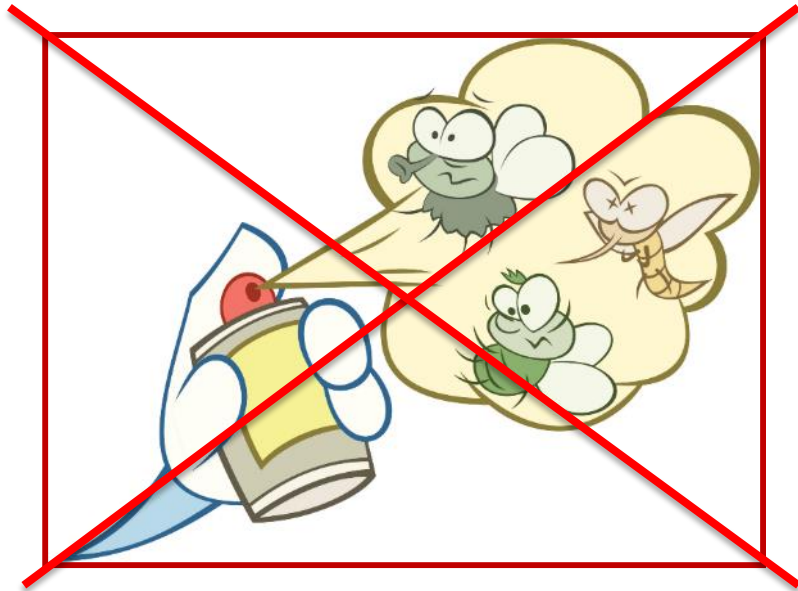
Not recommended, because *T. sinensis* larvae are inside the fresh galls

## **BEST PRACTICES AFTER THE RELEASE**

- **do not burn plant material in the period from mid-April to end of June.** In fact, the fumes interfere with the activity of the beneficial insect *T. sinensis* which, in the indicated period, lays its eggs in the new galls of the year reducing the increase of the Asian chestnut gall wasp;
- **do not treat with any kind of insecticide.**



# BEST PRACTICES AFTER THE RELEASE



## CHEMICALS

Avoid chemical sprays inside the orchards during the flight period of *T. sinensis*