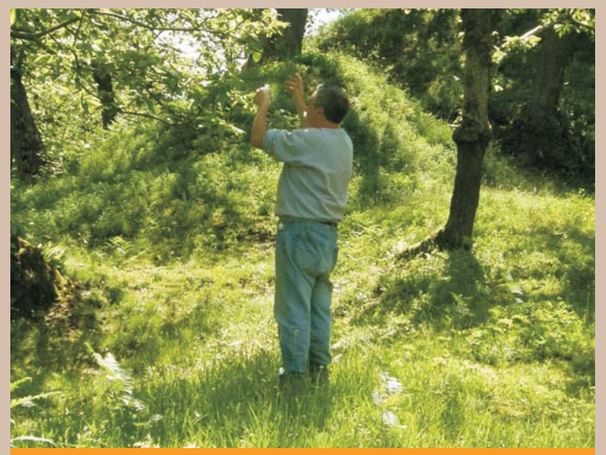
The CGW biocontrol of becomes a national strategy

While the regional project of CGW biocontrol was quickening, the CGW emergency was becoming a national problem.
The Plan for chestnut sector 2010-2013, approved by "State-Regions Conference", funded the Regions for CGW biocontrol.
These resources were directed to the establishment of regional multiplication centers and to strengthen the multiplication centers used by the University of Turin in Piedmont. With the government funds, Emilia-Romagna was able to begin the creation of a new multiplication area.
The new biofactory, located in the province of Bologna, presumably will begin its production in 2014. *Torymus*, produced in the new area, will be released in the chestnut growing areas of all the provinces of Emilia-Romagna with the aim to quicken as much as possible the parasitoid spreading in CGW infested areas.
This result could also be obtained by means of private resources made available by chestnut growers. Since 2012, in fact, it is possible to buy *Torymus sinensis* from a private company; some districts (including the Consortium of chestnut growers in Castel del Rio and a group of local producers in Casola Valsenio) have taken advantage of this opportunity and carried out a consistent number of releases (about 200). The synergy between public and private resources to release the greatest possible number of *Torymus sinensis* is definitely the way forward to re-establish in a few years the balance between the Chinese wasp population and that of its parasitoid in our chestnut growing areas.



***Torymus sinensis* dissemination**
(Agricoltura Archive – F. Dell'Aquila)

Emilia-Romagna Regional Plant Protection Service

Plant Protection Consortia of Modena, Parma, Piacenza, Reggio Emilia

RegioneEmilia-Romagna

The Regional Program for Chestnut Gall Wasp (*Dryocosmus kuriphilus*) biocontrol

***Torymus sinensis* dissemination**
(Plant Protection Service)

Adults of *Torymus sinensis* just released in chestnut plantation
(C. Delvago - Plant Protection Consortium of Parma)

May 2008: a bag containing some chestnut leaves showing "strange" galls containing larvae of gall wasp *Dryocosmus kuriphilus* delivered to Plant Protection Consortium of Reggio Emilia by a chestnut growers in Reggio Emilia was the first reporting of such invasive pest in the Region.
It was the beginning of a new phase for the chestnut farming in Emilia-Romagna: land monitoring, meetings with chestnut growers, professional updating of technicians, mapping of outbreaks, application of mandatory phytosanitary regulations. The main objective of this strategy was to identify and implement all possible measures to contain the spread of *Dryocosmus kuriphilus* and preserve local productions.
Thanks to the field experiences acquired directly from Piedmont, the region which firstly in Italy had to deal with this harmful pest, it was soon realized that the eradication of the chestnut gall wasp (CGW) would have been impossible.
The facts, in the course of time, have prove it. The rapid spread towards Emilia-Romagna areas, even far from one another, the lack of insecticide efficacy and the impossibility to apply them in chestnut plantations along with the absence of natural enemies made any immediate control action impossible.
The choice of Emilia-Romagna, similarly to other Italian regions, was the biocontrol.
In 2009 a specific project with Prof.

Alberto Alma (University of Turin) as scientific director, since he was the first dealing with such phytosanitary emergency, was launched.
The project, initially lasting three years, follows two main objectives:

- to create in Emilia-Romagna buffer areas where the reproduction of the parasitoid *Torymus sinensis* (TS) is promoted, so that they can act as a source of inoculum for chestnut plantations;
- to encourage the parasitoid spread in all regional areas in which CGW is present, in order to achieve its control.

The Plant Protection Service coordinates the activities carried out in collaboration with the Plant Protection Consortium of Reggio Emilia, the University of Bologna, the chestnut growers Consortia of Bologna and Carpineti Apennines.
In few years other Institutions and Associations took part to the Regional Program for CGW biocontrol. At present, the results, achieved until now, were made it possible with the collaboration of:

Plant Protection Consortia of Reggio Emilia, Modena, Parma, Piacenza
University of Turin
University of Modena and Reggio Emilia
University of Bologna
Territorial Agencies of Gal "Antico Frignano Appennino Reggiano"
Gal "Altra Romagna"
Gal "Bolognappennino"
Province of Ravenna
Union of "Romagna Faentina"
Chestnut Growers Consortia

***Torymus sinensis* dissemination programme in Emilia-Romagna Region, over the years 2012 - 2013**

PROVINCE	Dissemination 2012	Dissemination 2013
Piacenza	2	3
Parma	6	12
Reggio Emilia	10	11
Modena	8	14
Bologna	19	71(*)
Ravenna	3	19(**)
Forlì-Cesena	9	14
Rimini	3	8
San Marino Republic	2	3
TOTAL Releases	**62**	**155**

(*) 43 releases carried out by Gal "Appennino Bolognese" project
(**) 14 releases carried out by Gal "Altra Romagna" project

The results

Year 2009 In a small chestnut plantation in Carpineti (Reggio Emilia province), a multiplication area of *Torymus sinensis* was established, as first open-pit "biofactory" of the parasitoid wasp in Emilia-Romagna. TS specimens reared in Piedmont, were introduced in that area, having the suitable characteristics to promote their development and the multiplication.

Year 2010 The University of Turin provided Plant Protection Service of Emilia Romagna with *TS* adults to be released in 4 chestnut plantations located respectively in Pavullo, Santa Sofia, Castelnuovo Monti and Sasso Marconi. So the parasitoid started to be introduced in our production areas for CGW biocontrol.

At the same time, 14 TS specimens were found on 1000 galls picked up in the Carpineti biofactory: it was the signal that the parasitoid introduction in the area had been successful.

Year 2011 The TS dissemination in chestnut plantation continued. Twelve releases were carried out: 11 with *specimens* reared in Piedmont and 1 with insects born in the Carpineti biofactory, therefore indicating that it was on the right way to approach the wasp control. The releases were distributed in the different provinces, and repeated in the following years to assure a uniform coverage of the regional territory: Albareto-Folta and Neviano of Arduini-Campora (PR); Vetto, Villa Minozzo and Marola of Carpineti (RE); Zocca-Montombraro (MO); Castel del Rio-Sestetto, Monzuno-Querceto and Loiano-Bibulano (BO); Casola Valsenio (RA); Bagno di Romagna-Acquapartita (FC); Sant'Agata Feltria-Perticara (RN).

Year 2012 The management of *Torymus sinensis* rearings, originating from the multiplication area of Carpineti, was entrusted to the Department of Life Science, University of Modena and Reggio Emilia. Many new born of *Torymus* were collected from the galls produced in 2011 by chinese wasps; the result went over every forecast, so it has been possible to significantly increase the propagative releases in the chestnut plantations: to 24 releases already projected with specimens coming from Piedmont, 38 with "local" insects were added, for a total of 62 releases.

Year 2013 The *available* amount of *Torymus allowed a higher number of* releases compared to the previous year, particularly because of the material produced by the Carpineti biofactory. This year, as the Entomology laboratory of Agen.Ter joined to the parasitoid rearing, it will manage the second *Torymus* biofactory (located in Bologna province), as soon as it will go into production. Further releases of *CGW* parasitoid, were supplied by University of Turin, through national projects promoted and funded by Ministry of Agricultural, Food and Forestry Policy (InfoBioCast Project) and, at regional level, by Gal and Emilia-Romagna Region. Between April and May 2013, 155 new releases were carried out.