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# Arboriculture Research Note

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**CONTROL OF CONKER FORMATION**

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Summary

The present knowledge of possible chemical treatments for reducing fruit formation in Horse chestnut is reviewed and suggestions are made for alternative solutions to minimise the hazard caused by children collecting conkers in the autumn.

Introduction

1. The Horse chestnut (*Aesculus hippocastanum*), which is a native of the mountainous regions of northern Greece and Albania, was introduced into Britain in the early 17th century. Since that time it has been planted in the landscape of many parts of Britain. As towns and villages have spread, these trees have been retained as amenity features in the urban environment. More recently, specimens have been planted as quick growing amenity trees in gardens, along roadside verges and in public open spaces. Today these trees provide a valuable visual amenity and perpetuate the tradition of autumn 'conker' collection. When the trees stand close to buildings or highways children anxious to gather the nuts before they are ready to fall may place themselves and the public at serious risk of injury or they may cause damage to property.

Chemical Control of Fruiting

2. The use of chemicals to inhibit the fruiting of Horse chestnut appears possible. Although a number of individuals, chemical manufacturers and local authorities have tried to develop a reliable treatment, a practical solution has not yet been found. Chemicals are available which will prevent flowers being pollinated either by killing the flower or creating a barrier to prevent the pollen gaining access to the stigma of individual flowers. Flowers may be killed with caustic materials but the chemical must be applied at a very critical rate if leaf injury is to be avoided. Similarly hormones must be applied with great care because leaf damage may occur — or even worse at some concentrations the chemical may cause fruit to 'set' giving a heavier crop of fruit than normal. Coating the stigmatic surface of a flower with a plastic material, such as anti-transpirant, has its own hazards because a thick layer might crack while pollen tubes could penetrate a very thin layer.

3. The inducement of fruit abscission by application of hormones has been used in orchards to thin crops. Removal of all fruits has been achieved in some species when the hormone was applied between the late blossom stage and one week after petal fall. The timing of the treatment and concentration of the hormone solutions used are very critical. Trees of the same species and even flowers on the same tree may be in the appropriate condition for treatment at different times. This is particularly important with the racemes of flowers which open from the base upwards over a number of days.

4. Trials of chemical treatments to date suggest that the results in the field are likely to be very variable. In addition, chemicals applied as crown sprays, stem injection or soil drenches will have to be repeated annually, therefore any successful technique would be very expensive. However, none of the chemicals tested have approval under the Control of Pesticides Regulations 1986 for their use to inhibit fruit production in amenity trees. as such they cannot be used.

Alternative Treatments

5. The removal of Horse chestnut trees, which regularly present a hazard, and their subsequent replacement with an alternative genus should be considered. Careful siting of Horse chestnuts in large open spaces should not be discouraged, and this should reduce the risk of serious accidents being caused by 'conker' hunters.

6. When a Horse chestnut-like tree is desired for a restricted site where 'conker' collecting may present a risk, the following species, which are either sterile, small fruited or have fruit unattractive to 'conker' collecting children are suggested:-

   Double white flowered horse chestnut(*Aesculus hippocastanum* 'Baumannii')
   Sweet or yellow buck-eye (*A. flava*)
   Indian horse chestnut (*A. indica*)
   Japanese horse chestnut (*A. turbinata*)

   Although supplies of these species are not commonly held we understand that several nurserymen are able to offer limited numbers of these plants.

7. Inhibition of flowering and fruit formation can be achieved by heavy pruning of all branches. The resultant vigorous vegetative growths will compete for light for a number of years. When flowering again occurs pruning will need to be repeated. This treatment must be regarded, therefore, as only temporary to allow time for a replacement tree to become established.

Conclusions

8. At the present time no recommendations can be made for the chemical inhibition of fruit formation in Horse chestnut. The long-term solution appears to be the removal of trees which regularly create a hazard and their replacement with more appropriate species. The use of Horse chestnut should then be restricted to large open spaces where the hazard should be minimal.

9. There does not appear to have been any further research undertaken on this subject. Furthermore, there are no products approved for use fruit production inhibitors on non-crop trees.

Reference

LUMIS, G.P. (1985). *Preventing fruit formation on landscape trees*. Ontario Ministry of Agriculture and Food.

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