

Additional Answers of Dr. Tonge to some of the Queries about Vegetables, printed in Numb. 43.

TO the 11th. I add, that the Sap (*e. g.*) of a large Walnut in the latter season of its running, *i. e.* when it yields no sap any longer in the Body or Branches at any time of the day, runs longer at the roots on the *South* or Sunny-side, than on the *North* or shady side.

To the 12th. Birch-trees bored in the Spring so late, in respect both of the year and day, that they have afforded no Sap at all at the body, have been found sometime after, to have issued such plenty of juice, as hath condensed in the hole to a stiff Jelly. This I suppose to have risen not about Autumn, (as some conjecture) but in the heat of some day the same Spring, or in some extraordinary hot day following after that tryal, or the hole to have been made too late in the evening after the tree hath ceased to run for that day: Or else it hath in some favorable season run earlier than ordinary in the Spring following. But this is left to farther tryal; as also, Whether the sap in trees, *e. g.* in *Maples*, will not run some dayes sooner at the roots, than at body and branches; as they also run at roots some dayes longer than at body and branches.

To the 13th. As plenty of Rain can cause no more plenty of Sap than the pores of the root, body and branches will admit; which must stay some time to be digested, and converted into nourishment: So too much cold rain may by over-cooling hinder the Sap, by abating from the degree of heat necessary to pulsion of Sap into the root, and to the digestion in the tree; which is also in watering. On this ground it seems probable, that drawing Sap constantly from trees every year, will not hinder their growth in body, branches, leaves, nor fruit, to any great prejudice; for, pulsion will still supply juice into the emptied pores, till their capacity be filled.

It is possible also, that trees may grow better, and give more fruit, if the right art of drawing sap be found out for that end; as some persons grow fatter by often Bleeding. If plenty of Sap drawn from trees hinder at all, it seems probable, that it will hinder

der growth of fruit, leaves, or uppermost shoots in tops of trees, and yearly shoots in extreme parts. If by Observation this be verified, then hence we have a probable reason of Suckers robbing fruit, *viz.* because till the whole tree be filled of Sap, the fruit cannot be serv'd in the uttermost branches : wherefore not only Suckers, but all superfluous not-bearing Branches are to be carefully cut away before, or at the entrance of the Spring. Hence also it is to be inquired, Whether there be not some peculiar seasons to cause Timber, Branches and Fruit to increase; and whether the *first* season of the stirring of Sap be most proper to increase Roots, or the *last*; and in the middlemost season, when it reaches the top-most branches, properest for Fruit? Also, whether what they call *Blasting*, be not sometimes for want of supply of Sap at those seasons subject to blasting? And whether, by discreet watering and manuring, Trees that bear only some years, may be caused to bear yearly, which some Fruit-trees are observ'd to do in all soils, and others in some soils, and not otherwise.

Quere also, if the soyle cause this diversity of fruitfulness by diversity of pulsion, and plenty of sap therein depending, what sort of soyl *that is*, and how it may be imitated by Art?

Quere farther, Whether pruning the roots, by diversifying the Pulsion, may not also promote the fruitfulness, by taking of those that lead immediately to wood, *i. e.* the *shortest*, and of the latter years shooting, and as it were the Suckers of the root, and leaving and nourishing those which feed fruit especially, which are suppos'd to be the *longest*, and of the former years shooting? And, whether cleaving roots so, as to cause new ones to spring from the inner part of the cleft, held open by a stone, do not help fruitfulness for this cause?