

Tomatoes are a very popular and very frugal fruit, making them very hard to harvest without damage. A horizontal conveyor belt transported the tomatoes through the sorting area, where clods of dirt, bad tomatoes and trash were removed. In 1959 Blackwelder Manufacturing Company of Rio Vista California, in collaboration with scientists and agricultural engineers at the University of California at Davis, invented the first successful tomato-harvesting machine. Since the fruit did not reach maturity uniformly, the farmers had to harvest three or four times a summer or lose profits in unripe tomatoes. At the end of the sorting area another belt carried the tomatoes to a large bin either pulled behind the harvester or pulled along side by another tractor. During the war the shortages of labor and the high prices forced engineers to look for mechanical harvesters. In trying to develop mechanical harvesters the engineers were faced with two challenges. Since tomatoes were thin-skinned, they had to be handled gently to avoid bruising and cracking. A farmer in Pennsylvania named Garber developed the first mechanical harvester. Each tomato plant was severed a little below the ground level by a blade or rotating disk, then carried to a shaking device by a conveyor belt. Once inside the machine the plants lay on a belt that vibrated with a four-inch stroke at a rate of 175 to 200 cycles per minute, forcing the fruit to drop from the vines. He extended hammocks from either side of a truck and had workers sit in them and pick the fruit as the truck drove up and down the rows. One of the changes was the development of tomatoes that would all mature at roughly the same time, allowing for a single harvest. At harvest time the motorized machine was driven down the rows of tomatoes. The vines would fall to the ground and the tomatoes were carried to a sorting area by a second conveyor belt. It is the fall from the last conveyor belt to the bin that resulted in the most damage to the tomatoes. As a result, approximately one quarter of the tomatoes were damaged and were either unsellable or had to be sold at discount. This first machine worked as follows 1.1.2.2.3.4.