In Singapore, Nanyang Technological University scientists developed a sustainable way to demonstrate a new genetic modification that can increase the yield of natural oil in seeds by up to 15 per cent in laboratory conditions. The new method can be applied to crops such as canola, soybean and sunflower, which are in a multi-billion dollar industry that continues to see increasing global demand.

The research team led by Assistant Professor Wei Ma from NTU’s School of Biological Sciences genetically modified a key protein in plants which regulates the amount of oil they produce. This results in larger oil reserves in the seed that primarily serves as an energy source for germination.

The team’s patent-pending method involves modifying the key protein known as “Wrinkled1” or “WR11”, which regulates plants’ oil production. After modification, the seeds have a wrinkled appearance, which is the basis for its scientific codename.

The ability to increase oil yield in a sustainable manner is expected to result in higher economic gain. Past research has shown that a small 1.5 per cent increase in oil yield (by dry weight) in soybean seeds equates to a jump of US$ 1.26 billion in the United States market.