

Document 0209

[20209001]

Researchers at Plant Genetic Systems N.V. in Belgium said they have developed a genetic engineering technique for creating hybrid plants for a number of key crops .

[20209002]

The researchers said they have isolated a plant gene that prevents the production of pollen .

[20209003]

The gene thus can prevent a plant from fertilizing itself .

[20209004]

Such so-called male-sterile plants can then be fertilized by pollen from another strain of the plant , thereby producing hybrid seed .

[20209005]

The new generation of plants will possess the flourishing , high-production trait known as “ hybrid vigor , ” similar to that now seen in hybrid corn .

[20209007]

On a commercial scale , the sterilization of the pollen-producing male part has only been achieved in corn and sorghum feed grains .

[20209008]

That 's because the male part , the tassel , and the female , the ear , are some distance apart on the corn plant .

[20209009]

In a labor-intensive process , the seed companies cut off the tassels of each plant , making it male sterile .

[20209010]

They sow a row of male-fertile plants nearby , which then pollinate the male-sterile plants .

[20209011]

The first hybrid corn seeds produced using this mechanical approach were introduced in the 1930s and they yielded as much as 20 % more corn than naturally pollinated plants .

[20209012]

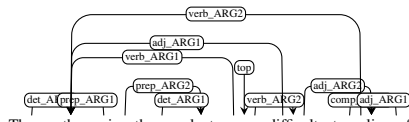
The vast majority of the U.S. corn crop now is grown from hybrid seeds produced by seed companies .

[20209013]

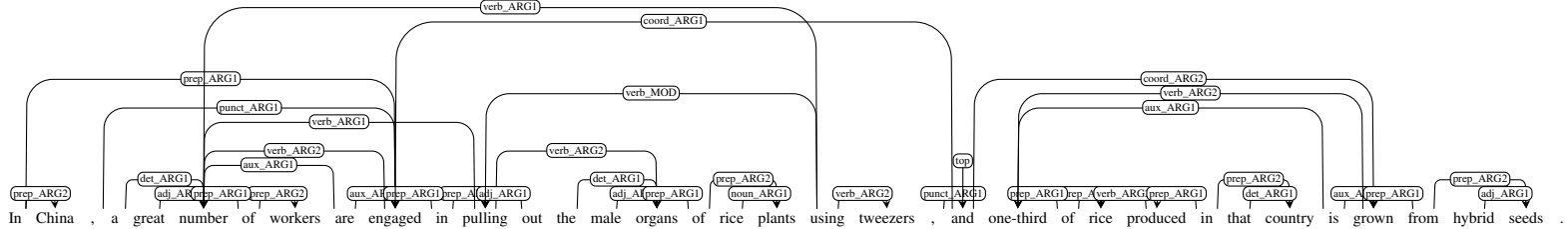
A similar technique is almost impossible to apply to other crops , such as cotton , soybeans and rice .

[20209014]

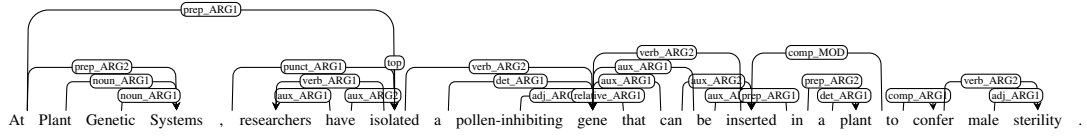
The male part , the anthers of the plant , and the female , the pistils , of the same plant are within a fraction of an inch or even attached to each other .



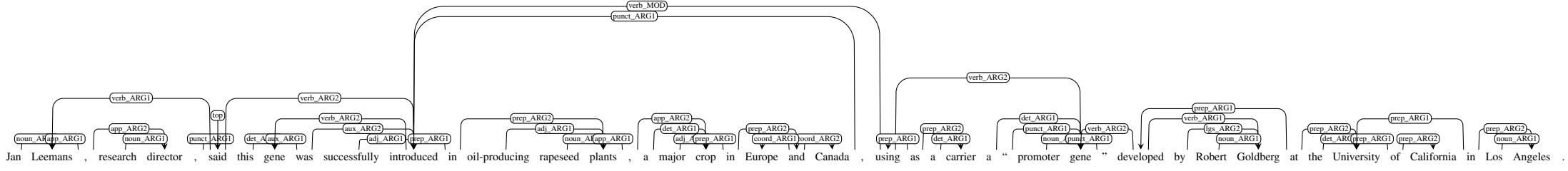
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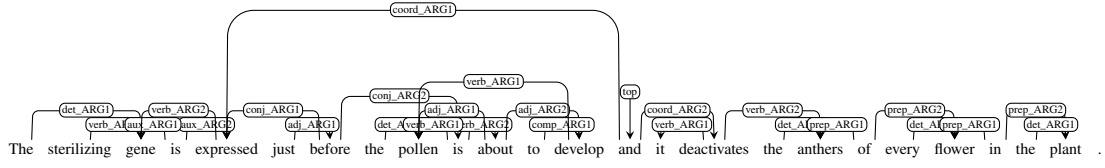
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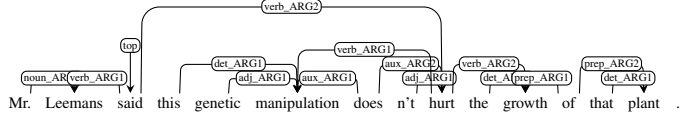
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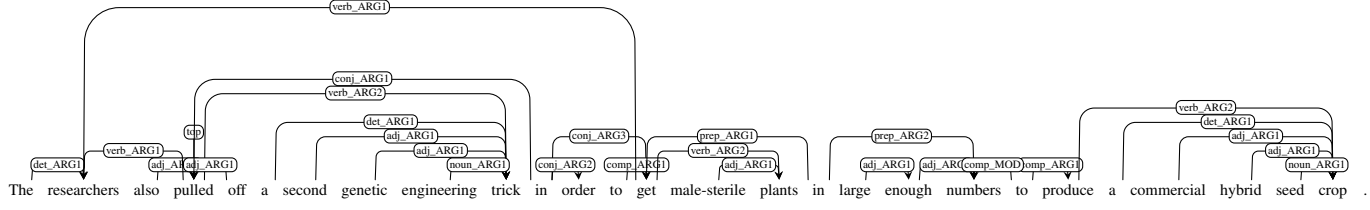
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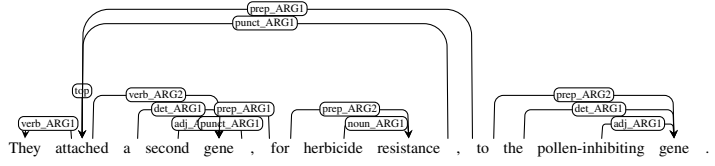
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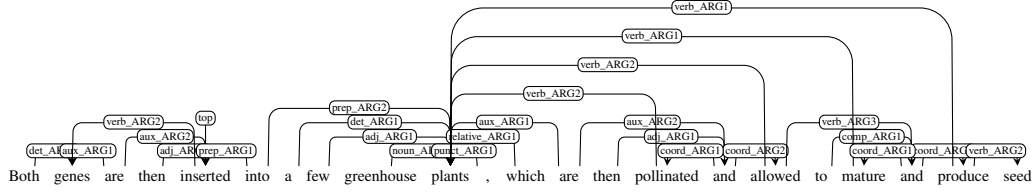
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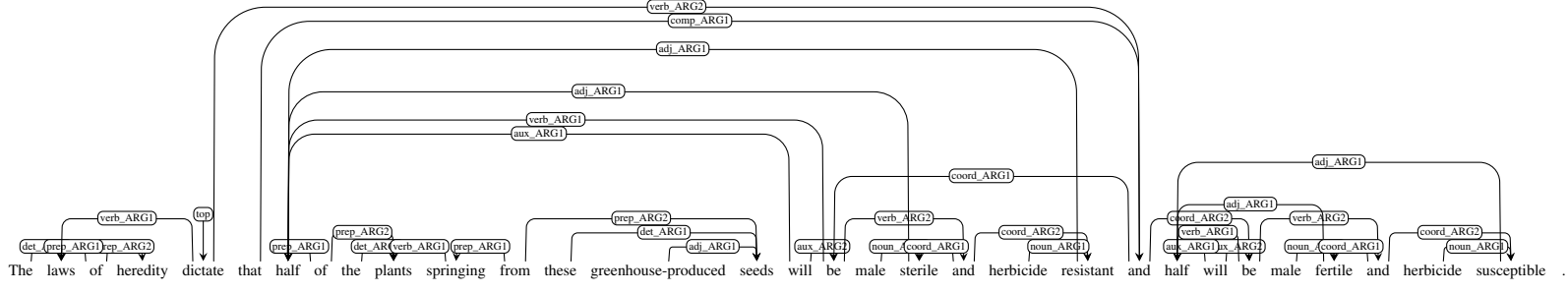
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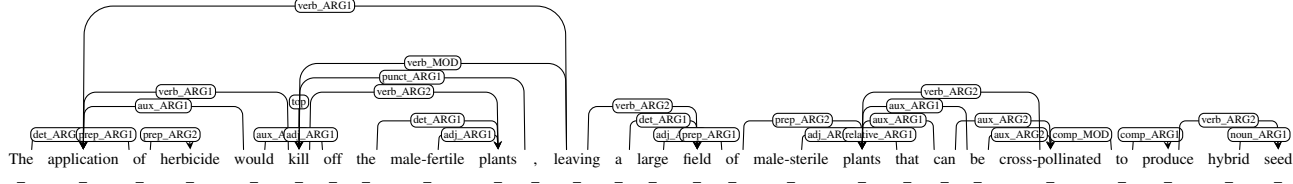
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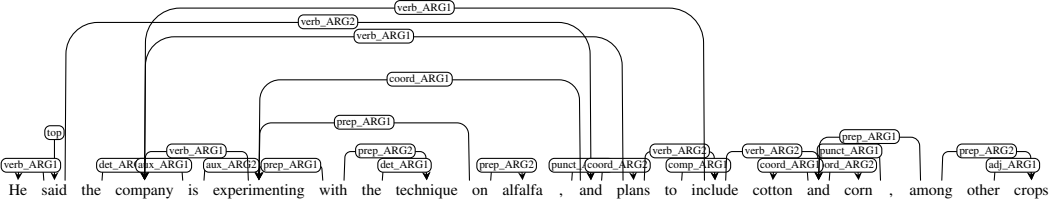
[20209024]



[20209025]



[20209028]



[20209030]

In recent years , demand for hybrid seeds has spurred research at a number of chemical and biotechnology companies , including Monsanto Co. , Shell Oil Co. and Eli Lilly & Co .

[20209031]

One technique developed by some of these companies involves a chemical spray supposed to kill only a plant 's pollen .

[20209032]

But there have been problems with chemical sprays damaging plants ' female reproductive organs and concern for the toxicity of such chemical sprays to humans , animals and beneficial insects .

[20209033]

However , Paul Johanson , Monsanto 's director of plant sciences , said the company 's chemical spray overcomes these problems and is " gentle on the female organ . "

[20209035]

This gene , called " gametocide , " is carried into the plant by a virus that remains active for a few days .

[20209037]

" There is a large market out there hungry for hybrid seeds , " he said .

[20209038]

Mr. Robinson of Delta & Pine , the seed producer in Scott , Miss. , said Plant Genetic 's success in creating genetically engineered male steriles does n't automatically mean it would be simple to create hybrids in all crops .

[20209041]

Nevertheless , he said , he is negotiating with Plant Genetic to acquire the technology to try breeding hybrid cotton .