

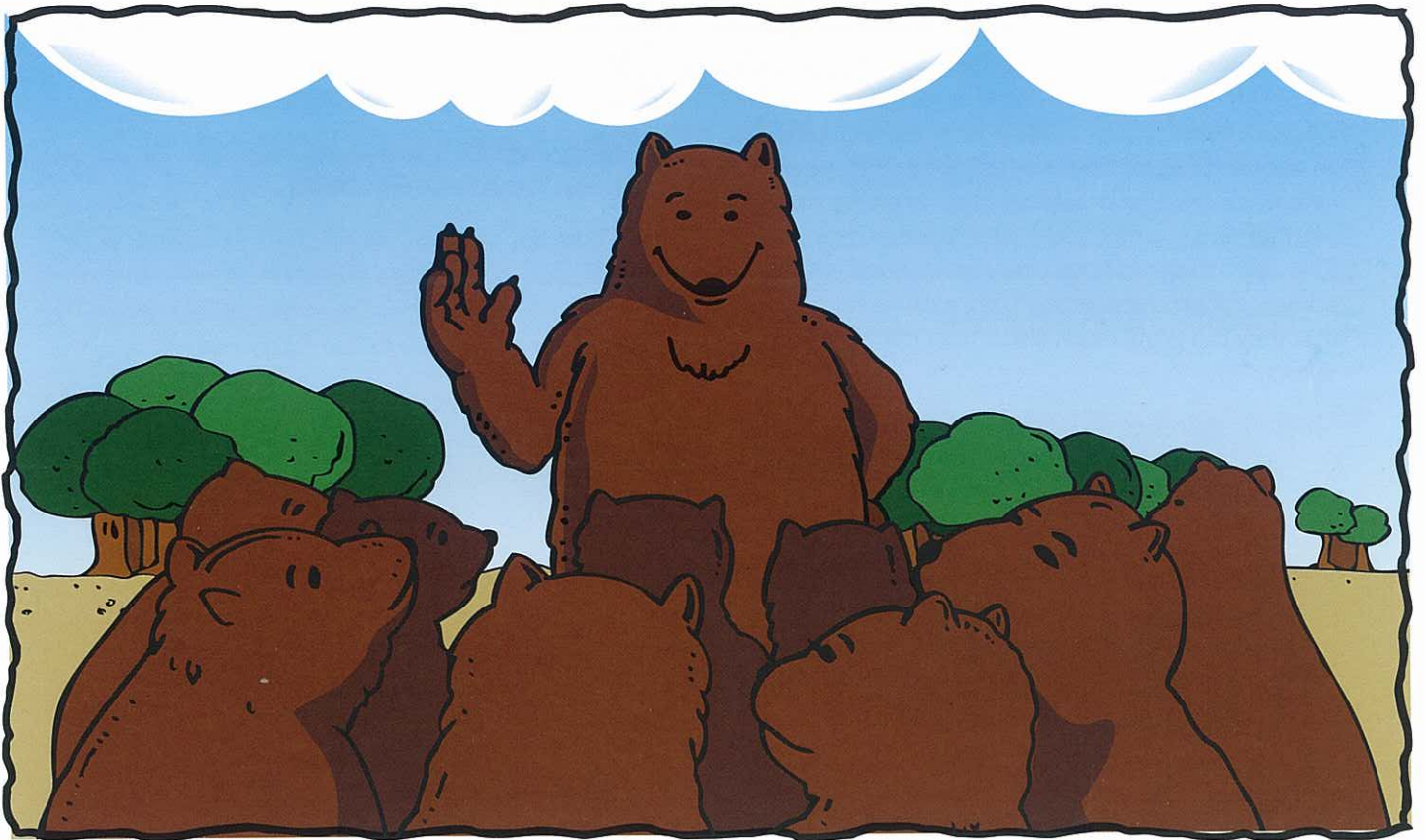
GM Food Newsletter

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Would Genetically Modified Salmon Save the Bears?



Deep in the forest lived a tribe of bears. As autumn has come, bears began stocking up on food and fat to keep themselves warm during the cold winter months. Acorns, blueberries and salmon were their favourites. Unfortunately, a heat wave last summer affected strongly most of their staples in the forest. Salmon did not come back as usual because they did not enjoy the high water temperature in rivers. As bears slept through winters and woke up hungry in springs, so now the bears gathered at the circus for possible ways to have sufficient food to live through the cold weather.

“Ahem! Everyone, may I have your attention please?” the Patriarch stood in the centre of the circus and began his speech, “First of all, I have to thank you for your presence here today at this special meeting. As you have already known, the heat wave last summer has killed all the berry vines and pine trees in the forest. Salmon do not make a

comeback as they do every year. We are now facing an unprecedented food shortage. Today we are here to find ways to increase our food supply. Would anyone who has a solution to the current food crisis please stand up and shout out loud?”

“Patriarch, Patriarch!” Teddy shouted and waved his hands, “I have a whole big idea.”

“Okay, Teddy. Please let us know what is in your mind,” the Patriarch responded.

Teddy stepped on a stump and said in a clear strong voice, “My pleasure. As we all know, outside our forest, the humans raise a lot of salmon in the open ocean net pens. We can send some strong guys there to catch the caged salmon and bring them back for the whole tribe.”

“Boo...” the crowd hooted.

A voice called out, "We can only catch a few fish each time but we can be killed by the guards at any moment. It is too dangerous!"

"No, no, no....Please let me explain. A few months ago, when I was searching for food outside the forest, I learnt that the humans have developed a type of genetically modified (GM) salmon. The salmon can grow twice as fast as the wild Atlantic salmon," Teddy said.

"Oh, really?" the Patriarch said with interest.

"Yes, Patriarch," Teddy could not wait to tell the others, "These GM Atlantic salmon have two foreign DNA sequences inserted into their genomes. One is a growth hormone gene from a close cousin, the Chinook salmon. The other is an on-switch used by an antifreeze gene from the eel-like ocean pout. In nature, conventional salmon stop growing in cold weather and grow very slowly in the first year of life. The use of the pout's on-switch allows the GM salmon to produce growth hormones year round that they can grow much faster than the wild Atlantic salmon."

"So?" the Patriarch asked.

"The trick is here!" Teddy was excited, "Since these GM salmon produce growth hormones all year, they will be much bigger than the wild Atlantic salmon. Only if we can catch a few of the bigger fish, the extra muscle built in the fish would suffice to feed us..."

"Patriarch, Patriarch..." a soft voice from the other side of the circus interrupted.

"Yes, Barry," the Patriarch turned and replied.

"Patriarch, I learnt something different about this GM salmon," Barry mumbled.

"Okay, Barry please speak up and let us know what you have learnt," the Patriarch said.

Barry was too shy that he could not look straight in the Patriarch's eyes, "As far as I know, the GM salmon, in fact, will only grow faster to market size but not bigger than conventional Atlantic salmon. What Teddy just said about the "bigger" fish is not valid."

"Um..." the Patriarch nodded.

"Besides, the humans are not going to raise these GM salmon in ocean net pens as they usually do. The fish will only be grown inland," Barry continued.

"Grown inland? Why?" the Patriarch queried.

"Because...because...the humans worry that if these fast-growing salmon escaped into the ocean, they might out-compete with the conventional salmon for both food and mates that may harm the endangered wild Atlantic salmon," Barry said.

"Wow...Are they really safe for the environment? Environment is a big concern for us!" the Patriarch said in a deep voice.

"The company that developed the GM salmon has agreed to put in place multiple barriers to keep its fish from escaping. Moreover, the GM eggs have been designed to develop into sterile females that the fish will not interbreed with wild salmon," Barry said.

"It seems okay for the environment. But...are they safe to eat?" the Patriarch asked.

"This GM fish has been found to be as safe to eat as normal salmon. However, the US food safety authority is still considering whether to approve this GM salmon for commercialisation," Barry replied.

"Um...It seems that the GM salmon is not a very good choice for us," the Patriarch commented. "Let's forget about the salmon, is there any way to expand the supply of berries and acorns?"

"Yes, Patriarch, I have another whole big idea..." Teddy jumped on another stump and yelled...

