

## Plant Breeding Innovation (PBI) Product Information Sheet (PIS)

<b>Part I. Background Information</b>	
1. Name of Product Developer	Rahan Meristem (1998) Ltd
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5. Website (if any)	<a href="http://www.rahan.co.il">www.rahan.co.il</a>
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<b>Part II. Description of the PBI Product</b>	
1. Name of the PBI Product	Black Sigatoka Tolerant Banana
2. Identification of the PBI Product (organism)	Scientific Name: <i>Musa acuminata</i>
	Common Name: Banana
3. Phenotypic feature before and after genetic change (Explain in detail.)	<p>Black leaf streak disease (BLS) is a leaf-spot disease of banana plants caused by the fungus <i>Mycosphaerella fijiensis</i>. All banana cultivars grown in the Banana industry are highly susceptible to BLS. The control of this disease relies only on aerial applications of fungicides. The symptoms of BLS start as small specks that become streaks running parallel to the leaf veins. These streaks aggregate and eventually form spots that coalesce, form a chlorotic halo, and eventually merge to cause extensive necrosis. Under favorable conditions for the fungus, and without chemical control, no functional leaf might be left at harvest and as a result yields can be reduced by 35 to 50%.</p> <p>We at Rahan Meristem, have selected a gene in banana for genome editing. According to a publication, a null mutation in the selected gene resulted in increased tolerant to blast fungus infection. We have designed gRNA to edit this gene. After genome editing, the cells were regenerated to</p>

	<p>banana plantlets. During the regeneration process, the plants were tested for the success of the genome editing by amplicon NGS, and to the absences of any insertions to the banana genome by PCR.</p> <p>The genome editing was performed on banana cell suspension originated from the <i>GAL</i> variety. <i>GAL</i> is registered banana variety owned by Rahan Meristem. It was selected from Williams variety more than 20 years ago and is known in it high yields, cylindrical bunch shape and strong stem. All of these traits are not affected by the genome editing. As far as we understand, none of these traits will be affected by the genome editing, and we will test it in the field trials. During the field trials, we will test the new PBI banana plant tolerant to BLSA. Upon success, it will allow to grow the new and improved <i>GAL</i> banana without the need to use fungicides and a significantly reduction of the BLSA symptoms will be observed.</p>
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<b>Part III. Description of the Plant Breeding Innovation (PBI) Procedure Used (To Be Used)</b>		<b>Reference/s (If applicable)</b>
1. Purpose of the PBI	Develop banana ( <i>Musa acuminata</i> ) with tolerance on black Sigatoka	
2. PBI procedure	Site-directed nuclease 1 (SDN1)	
3. Genetic change in the organism		
a. Name of the molecular tools used	Genome editing using the Crispr CAS9 protein.	
b. Delivery system	<i>Agrobacterium</i>	
c. Nature of DNA changes	Deletion of 1-20bp in the edited gene	
4. Experimental evidence showing the final PBI product has no new combination of genetic material in the form of foreign DNA insert or sequences from gene editing tool	The final product is a banana plant with high tolerance to BLSA. To ensure that the plants are free from all of DNA inserts, we performed PCR tests on the plantlets. The PCR was conducted using specific primers against 2 regions on the T-DNA used in this work.	

construct using appropriate molecular techniques.	We used only plants that showed negative results, meaning there is no integration of the T-DNA components sequences in the plants.	
5. Any existing regulatory precedence on the PBI Product in the issuing country and purpose of the decision (if applicable).		