IN THE MATTER OF THE PETITION OF

MONSANTO COMPANY, A DELAWARE CORPORATION - DOCKET NO. DR17-60

WRITTEN DIRECT TESTIMONY OF ROBERT J. STARKE, PH.D

1. **Please state your name and address.**

My name is Robert J. Starke. My business address is 94-520 Kunia Road, P.O. Box 200, Kunia, HI 96759.

2. **What is your current occupation?**

I am the Farm Manager for Monsanto's farm in Kunia, on the Island of O'ahu. In addition, I also collaborate with all of Monsanto's farm managers in Hawaii including those on the islands of Maui and Molokai to discuss best practices and review our current agronomic practices and procedures for growing seed.

3. **How long have you been employed by Monsanto?**

I have been employed by Monsanto for almost 20 years. I started with Monsanto in 1998, as a research scientist, and have held various positions, such as agronomic research manager, corn insect trait technical manager, corn product manager, regional agronomy lead, and now as the Kunia Farm Manager. A copy of my current resume is included with this Written Direct Testimony.

4. **What is your educational background?**

I have Bachelor of Science in Agronomy from the University of Missouri, a Master of Science in Plant and Soil Science from Michigan State University, and a Doctorate in Agronomy from the University of Arkansas. While in college I also taught general agronomy and soil science courses.

In addition, in support of the agriculture industry, I have also taught courses for the Certified Crop Advisor Program (CCA) and for professional society meetings such as the Entomological Society of America

5. **Have you ever provided testimony as an expert witness before the State Land Use Commission?**

Yes, once. Last week, in Land Use Commission Docket No. DR17-59, I was designated as an expert witness in the fields of agronomy, crop and soil sciences.

6. **Are you familiar with the 1,080.079 acre parcel of land that Monsanto seeks to have designated as Important Agricultural Land, or IAL?**

Yes, the 1,080.079 acre piece of land that Monsanto seeks to have designated as IAL is identified as Tax Map Key parcel number (2) 5-2-012-004, and is shown on Petitioner's Exhibit 1a attached to the Petition. When referring to the "**Property**", in my answers, I am referring to that parcel.

7. **Are you familiar with the Detailed Land Classification System and Agricultural Land Productivity Ratings by the Land Study Bureau, or "LSB", of the University of Hawaii?**

Yes.

8. **What soil types or classifications exist on the Property under the LSB rating system?**

As described in section 1.5.2.2 of the Petition, with irrigation, 70.4 % of the Property is rated A, 22.8% is rated B, 0.1% is rated C, and 6.7% is rated E. The locations of the different areas are shown on Figure 4B of the Agricultural Land Assessment, which was attached to the Petition as Petitioner's Exhibit 4 (the "**Ag Assessment**").

9. **Are you familiar with the Agricultural Lands of Importance to the State of Hawai'i, or "ALISH" classification system?**

Yes.

10. **What soil types or classifications exist on the Property under the ALISH rating systems?**

As described in section 1.5.2.3 of the Petition, 90% of the Property is classified as Prime under the ALISH rating system. The locations of the different ALISH lands are shown on Figure 5 of the Ag Assessment.

The LSB and ALISH rating systems measure soil productivity using different methodologies and both indicate that more 90% of more of these lands are highly productive. These results are consistent with our past experiences on the property as the soil physical and chemical properties have allowed the production of high quality seed crops.

11. **What agricultural uses are currently taking place on the Property?**

The property is currently being used to produce corn and soybean seed, along with coffee production and sunn hemp seeds. In addition, cover crops are also being grown in fields that are not actively producing the previously mentioned crops.

12. **In your professional opinion, is the Property capable of producing sustained high agricultural yields?**

Yes, with over 90% of the soil rated A or B in the LSB and with 90% of the land rated as prime in the ALISH system, this land is well suited to agricultural production. The soil texture and soil depth also allow for good water infiltration and holding capacity that will allow high levels of crop production in a tropical environment.

In addition, while this land does have some rocks or stones – the concentration and size of rocks is significantly less than other areas allowing the use of tillage and planting equipment.

13. **In your professional opinion, could the Property be used for other agricultural purposes, or is it primarily suitable only for the cultivation of seed corn, soybeans, coffee, and sunn hemp seeds?**

The property is well suited for a variety of different crops including row crops, vegetable crops or horticultural crops. The soil texture, soil depth, soil pH, and land slope would allow farmers to produce many different types of crops successfully.

14. **In your professional opinion, does the 1,084-acre Petition Area represent a block of productive agricultural land?**

Yes. This land is highly productive, if irrigation water is available in a timely fashion for watering the planted crop.

15. **In your professional opinion, could the 1,084-acre Petition Area provide a land base to increase agricultural self-sufficiency for current and future generations?**

Yes, this land is among some of the most productive land in Hawaii. The land in the petition area could be used in many ways to produce food and fiber now and into the distant future.

Respectfully submitted,

ROBERT J. STARKE, Ph.D.
Dated: Honolulu, Hawai'i, October 16, 2017

Robert (Bob) Starke

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A technical leader with a strong commercial acumen and a history of collaboration with many different internal and external organizations including Breeding, Licensees, Marketing, Product Management, Sales, Supply Chain Technology, and Technology Development.

Employment Experience:

February 2017 – Present – Kunia Site Lead, Monsanto

- Lead a group of ~150 employees to ensure that multiple projects are completed safely, on time and at or above target yield levels.
- Coach a team of developing leaders to ensure their long-term success and make certain they are leading by example across the organization
- Develop trackable metrics to drive more defined goals and improvement areas.
- Prioritize and plan long term and short time budgetary needs for an organization with >$10M annual budget.
- Develop relationships with key internal and external partners to help increase agriculture on Oahu.

June 2012 – January 2017 – Product Licensing Lead, Monsanto

- Managed a group of corn and soybean genetic experts that provided the industry standard genetic and trait supplier customer experience.
- Developed long term corn and soybean product deployment strategies to maximize utilization while minimizing conflicts
- Created an open and sharing workplace environment for employees that often have competing interests.
- Cooperated daily with key corn and soybean licensees to manage short term challenges and to develop long term strategies.
- Sustained internal connectivity with key stakeholders to ensure that the licensing business is taken into consideration position when key decisions are made.

June 2010 – June 2012: Regional Agronomy Lead

- Developed and coached a team of agronomists to enable industry leading technical sales support for a varied audience of DSMs, Seed Dealers and Farmers
- Managed a regional budget and prioritized needs to ensure maximum impact.
- Provided input and set direction as needed for all national research projects within the Agronomy organization
- Measured the effectiveness of internal processes in an attempt to bring about change and simplification. Key projects included plot data entry and product performance inquiries.
- Collaborated with all internal stakeholders to create clear concise direction and messaging as needed for issues management

Feb 2007 – June 2010: DEKALB Corn Product Manager

- Developed seed and foundation production plans in collaboration with every US sales team, Canada and the seed manufacturing organization.
- Employed a pricing strategy which met or exceeded budget objectives
- Collaborated with other Monsanto teams to complete cross channel initiatives, such as seed treatment opportunities, new trait launches, germplasm deployment and price zone development
- Gained consensus from leadership and field sales for individual team trait and sales volume targets
- Developed DEKALB corn selling messages that differentiated vs. competitive brands

August 2004 – February 2007: Corn Germplasm Technical Manager, Monsanto

- Managed field germplasm plot testing process including FACT, Market Development, and State Yield Trials.
- Provided technical direction and support of the DEKALB commercial corn lineup, including the introduction and placement recommendations for all new products
- Led protocol development for agronomic practices such as population trials, foliar fungicide trials, and seed treatment trials.
- Developed testing and sample collection processes for end use markets including silage, hard endosperm, and ethanol.
- Created and presented training materials for new hires and new technology introduction including the development of computer based training modules.

January 2002 – August 2004: Corn Insect Trait Technical Manager, Monsanto

- Development of protocols and testing processes for the launch of YieldGard Rootworm
- Primary contact for University entomologists and Monsanto Technology Development personnel conducting regulated field trials
- Developed data and trained internal and external audiences about the benefits of the YieldGard technologies

March 1999 – December 2001: Agronomic Research Manager, Monsanto.

- Providing technical training and sales support to field sales staff.
- Conducting field protocols in corn, soybeans, wheat and sunflowers to determine herbicide efficacy, crop safety, and trait effectiveness.
- Developed local field sales support materials.
- Coordination of FACT and Market Development plots for state of South Dakota.

March 1998 – March 1999: Research Scientist, Monsanto

- Optimized and testing formulations of MON 37500 in greenhouse and field environments
- Technical support for the launch of MON 37500 in US, Canada and India
- Managed full time and temporary staff required for greenhouse research

Education and Background:

Doctorate in Agronomy, University of Arkansas - February 1998.
Advisor: Dr. Dick Oliver

Master of Science in Plant and Soil Science, Michigan State University - May 1995.
Advisor: Dr. Karen Renner

Bachelor of Science in Agronomy, University of Missouri - May 1993.

Raised in rural Missouri on a small grain and livestock farm. Multiple family and close friends are currently involved in production agriculture.