

**WELCOMING REMARKS
NANOMALAYSIA JUMPSTART SEMINAR SERIES:
FOOD & AGRICULTURE**

BY

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Thank you Masters of Ceremony.

Salutations

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Datuk-Datuk, fellow peers from the industry, fellow experts, ladies and gentlemen welcome to the NanoMalaysia Jumpstart Seminar Series: Food & Agriculture.

1. Firstly, I would like to express my gratitude to our host today MARDI for hosting us and the NanoMalaysia Jumpstart Seminar Series at this ideal venue and our speakers today for being able to spare some time out of their busy schedule to share in this seminar and also all guests present today.

2. Technology is a matter that evolves very rapidly from year on year. Giants of the technology industry are always eager to stay ahead of the rest. Hence, if one hesitates he shall lose the race.
3. Nanotechnology is something that we have all become acquainted with and are now familiar with its wonderful and ground breaking properties. From the fundamentals of reinforced concretes and carbon fibre to the nanotechnology realms of graphene and nanofibres in composites. Before we know it, nanotechnology are already part of our lives, even the food we eat will have nanotechnology elements to it.
4. Simply put – the world is changing and we are at a crossroads. As a small country, it is imperative that we leverage on innovation in order to capture a bigger slice of the global economy tomorrow and this must be done strategically and dynamically.
5. Since the launch of the NanoMalaysia in August 2011, we have been proactive in engaging the industry especially in food and agricultural.

Ladies and Gentlemen,

6. This NanoMalaysia Jumpstart Seminar Series on Food & Agriculture brings together market players, subject-matter experts and even investors whom eagerly await to invest in an attractive activity and the next big thing. Indeed, technology is a very risky game to take up. However, that is the nature of business these

days, you take the risk in order for you to strive. Nevertheless, having any particular technology in growing a business activity is essential. Hence, it is called intellectual property.

7. Nanotechnology has begun to find potential applications in the area of functional food by engineering biological molecules toward functions very different from those they have in nature, opening up a whole new area of research and development. Of course, there seems to be no limit to what food technologists are prepared to do to our food and nanotechnology will give them a whole new set of tools to go to new extremes.
8. Recent research has begun to address the potential applications of nanotechnology for functional foods and nutraceuticals by applying the new concepts and engineering approaches involved in nanomaterials to target the delivery of bioactive compounds and micronutrients. Nanomaterials allow better encapsulation and release efficiency of the active food ingredients compared to traditional encapsulating agents, and the development of nano-emulsions, liposomes, micelles, biopolymer complexes and cubosomes have led to improved properties for bioactive compounds protection, controlled delivery systems, food matrix integration, and masking undesired flavors.
9. The application of nanomaterials in agriculture aims in particular to reduce applications of plant protection products, minimize nutrient losses in fertilization, and increase yields through optimized nutrient management. In this respect, particularly attractive are nanoparticles derived from biopolymers such as proteins and

carbohydrates with low impact on human health and the environment. For instance, the potential of starch-based nanoparticles as nontoxic and sustainable delivery systems for agrochemicals and biostimulants is being extensively investigated. Nanomaterials and nanostructures with unique chemical, physical, and mechanical properties for example active carbon nanotubes, nanofibers and fullerenes have been recently developed and applied for highly sensitive bio-chemical sensors. These nanosensors have also relevant implications for application in agriculture, in particular for soil analysis, easy bio-chemical sensing and control, water management and delivery, pesticide and nutrient delivery.

10. Imagine eating foods without absorbing harmful allergens and cholesterol into your body. Imagine farmlands with environmental sensors that automatically release pesticides and fertilizers only when absolutely necessary. Imagine going to your nearest market and being able to modify the foods you purchase to suit your nutritional needs and tastes. With nanotechnology, these concepts are fast becoming a reality. These are some of the revolutionary means by which nanotechnology promises to transform the way we grow and process.
11. For the next few hours, we will be discussing some of the advancement of nanotechnology in the food and agriculture industry and also what is readily available right here in Malaysia for us to remain competitive. It is hoped that this platform that we have organised will spur more understanding and interest in nanotechnology for the prosperity of our economy. It will address

the growing importance of nanotechnology, the main applications being developed in food and agricultural, and the implications of these applications for the developing countries.

12. Without dragging this further, I hope that you all will be inspired and enlightened with what will be shared throughout the day today and perhaps taking the opportunity to discuss and probably gain interest in venturing into new frontiers with advanced materials.

13. Looking ahead, we must learn to develop and deploy revolutionary technology quickly, technology that will change and sustain the world we live in. The Government is coming up with programmes, but these programmes need support from the private sector to make them work. I am confident that we can achieve our goals by way of collaboration so let us put our efforts together, do it cohesively and ensure a progressive Malaysia for many generations to come.

Thank you.