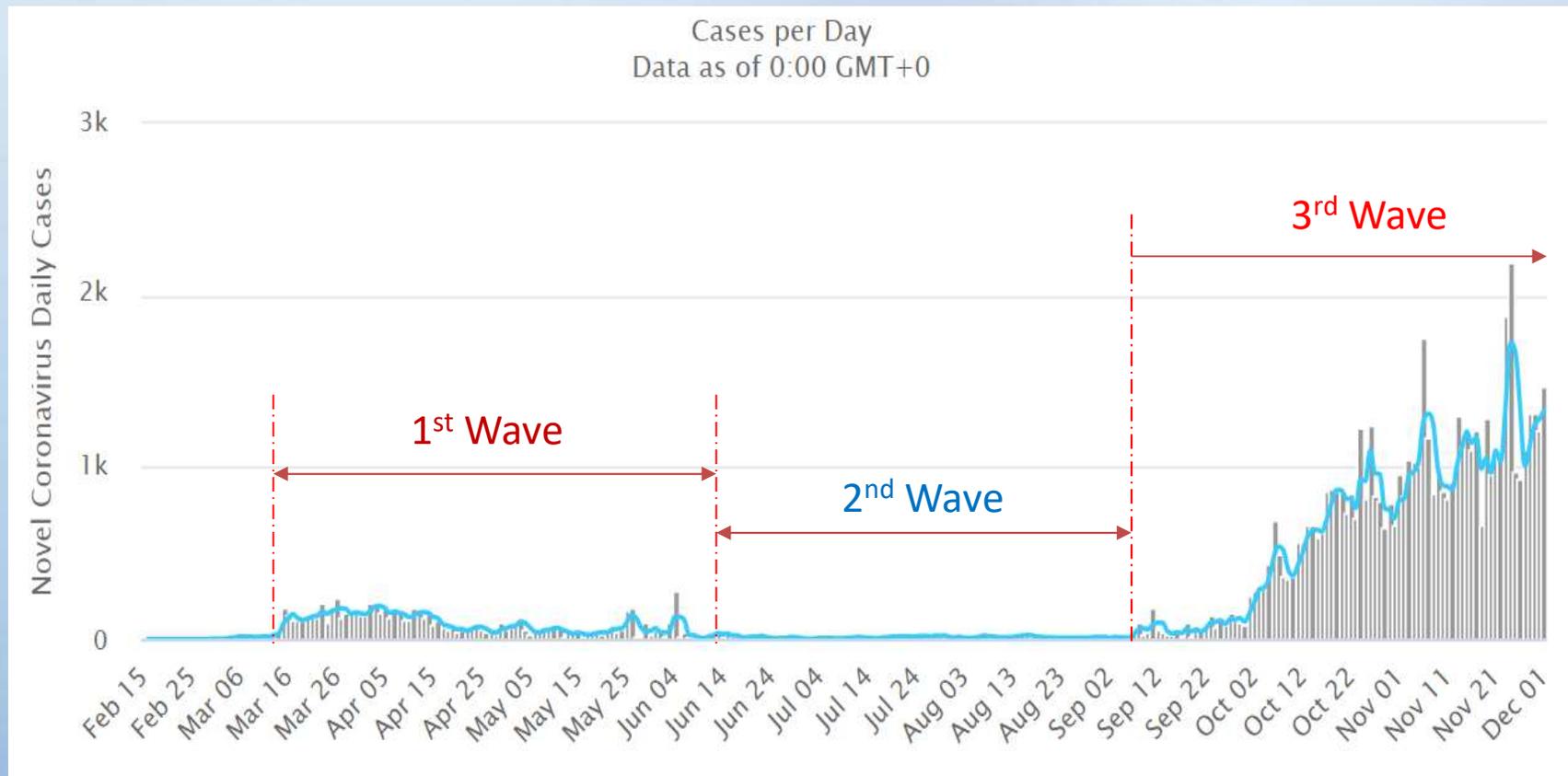




SUSTAINABLE FARM MECHANIZATION SYSTEM TO MITIGATE COVID-19 EFFECT (MALAYSIA PERSPECTIVE)

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COVID-19 DAILY CASES IN MALAYSIA



COVID-19 Pandemic Impact

- The implementation of the **Movement Control Order (MCO)** since March 18 had made an impact on the importance of sufficient food supply and why it must be made a priority.

- **1st wave – March – May 2020 : Lockdown (Movement Control Order)**
- **2nd wave – Jun – October 2020 : Recovery (Movement Control Order)**
- **3rd wave : October – now : Conditional (Movement Control Order)**

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HOW MALAYSIANS FARED DURING LOCKDOWN – SURVEY RESULTS

Effect of COVID-19 on Agricultural Sector in Malaysia : negative

- Normal crop production and field management has been disrupted.
- Affected the availability of inputs for agricultural production due to disruptions in the supply, transportation and sales of agricultural products.
- Operations of the agricultural machinery hire service providers have also been disrupted due to the challenges in effectively dispatching resources and services under the lockdown.
- SOP requirement for COVID-19 : social distancing especially for aging farmers (higher risk of COVID-19)
- In Malaysia, agricultural-labour shortages had been rising even before the COVID-19 crisis. With the pandemic, that challenge has been compounded. As the pandemic forces countries to close their borders, agricultural sector face severe labour shortages.



Effect of COVID-19 on Agricultural Sector in Malaysia : positive

- **Increasing Digitization of Agricultural Data**

In Malaysia, only few players in agriculture sector have been digitizing their records, others have not started yet due to a various reasons. The COVID-19 pandemic will be a strong motivator and catalyst for many to start or continue digitizing their agricultural data in order to make it better accessible in the future.

- **Improved Digital Collaboration**

To reduce face to face event, the trend of farmers digitally collaborate with their farming partners are rapidly increase and are becoming indispensable for everyone involved.

- **Superior Data Visibility**

With minimal direct interactions between people, data visibility is important to ensure that everyone involved has all data they need in order to perform their job optimally.



New technology toward sustainable farm mechanization system

A well-structured agricultural mechanization system has guaranteed safe working conditions for operators as well as the proper crop care.

Applying mechanization system together with digital technologies is a promising way to reduce labour dependency.

Precision Agriculture

- Labour shortage can be compensated with the help of sensors placed in the field, remote sensing technology and drone application.
- Reduce labour dependency.
- Satellites, drones, sensors assembled on tractors are applied in the field that allowed farmers to monitor crop growth remotely and verify field conditions when monitoring interventions in person were not allowed.
- The use of IT systems to record the operations on the field, the position of the machines and the involved workers ensure the source and processing of the data required are not affected by COVID-19.
- The use of IT systems also helped to track contagious operator routes, sanitize potentially contaminated areas and allow the health check of co-worker who are in contact with him.

New technology toward sustainable farm mechanization system

Variable Rate Technology (VRT) for seeding and fertilizer application

- Apply input based on crop requirement : improve efficiency and save input cost from 15 to 25%
- Reduce labour usage up to 50%

Early Warning System (EWS) for pest outbreak

- Digital platform detect problem spot in advance : saving on logistic and renting equipment
- Saving labour on surveillance process, require less people on field
- Digital management system on pest management : save time and minimize face to face contact during quarantine

Autonomous equipment/tractor

- Simplify production, increase the productivity, reduce close gathering of labourers, and is a very important tool in the prevention and control of pandemic.

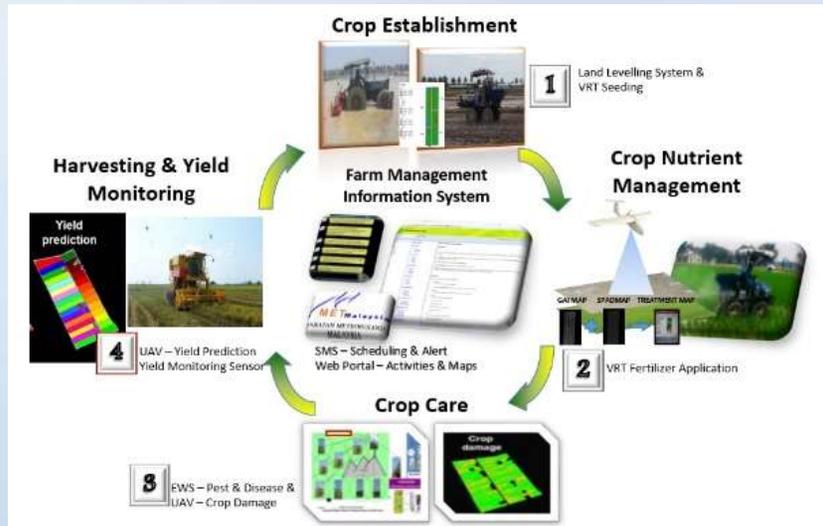


Figure 1: Precision farming technology for paddy cultivation in Malaysia



Figure 2: VRT for seeding process



Figure 3: VRT for fertilizer application



Figure 3: EWS system for pest outbreak monitoring

Future Strategies

1. Produce an enabling environment for sustainable agricultural mechanization system through policies, subsidies and investment, promotion of intelligent technology and capacity building of human resources.
2. For 2021, the government have allocated RM60 million for agricultural entrepreneur to procure IR4.0 technology and equipment.
3. Increased technology innovation in mechanization and cooperation with service provider to streamline production and increase the productivity, improve efficiency of dispatching machinery inputs and services, reduce the risk of farmers' close gatherings during production, and thus contribute to the control and prevention of pandemic

Future Strategies

3. Digital marketing platform for agro-product: This can facilitates sales, reduces transportation risks and allows access to the market. The government has allocated RM40 million to help SMEs in the agriculture sector sell their products on e-commerce platforms and reach a larger pool of consumers.
4. Big-data platform: Big-data platforms can link the all the information in the agricultural product supply chain to enhance circulation efficiency. Combination of big-data platforms with e-commerce will bring greater benefits.

AGRICULTURE & AGRO-BASED INDUSTRY MINISTRY DIRECTIONS "PRIORITIES & STRATEGIES 2019-2020"

BASED ON THREE DIMENSIONS OF THE AGRO-FOOD SECTOR :



