KERATAN AKHBAR-AKHBAR TEMPATAN
TARIKH : 09 APRIL 2018 (ISNIN)

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1.	UKM hasilkan padi tahan lasak	Utusan Malaysia
2.	Include science in political debate	The Star

KERATAN AKHBAR
UTUSAN MALAYSIA (MEGA SAINS) MUKA SURAT : 19
TARIKH : 09 APRIL 2018 (ISNIN)

UKM HASILKAN PADI TAHAN LASAK

MOHD. EKHWAN TORIMAN (tengah) diiringi oleh Khairiah Badri (kiri), Khairul Abd Rahman (dua kiri), Dr. R. Wickneswari (dua kanan) dan Ketua Pegawai Eksekutif Syarikat Perniagaan Peladang (MADA) Sdn. Bhd. (Mada Corp), Shakir Jamil Fisal (kanan) di lokasi sawah padi RC2 dan RC8 di Semanggol, Perak baru-baru ini.

KETIKA ini negara hanya mampu mengeluarkan antara 70 hingga 72 peratus sahaja bekalan beras dalam negara.

Jadi, sekuriti bekalan makanan hanya akan tercapai sekiranya Malaysia melakukan sesuatu untuk meningkatkan produktiviti dan kapasiti pengeluaran hasil pertanian.

Inilah yang dilakukan oleh Universiti Kebangsaan Malaysia (UKM) yang mengorak langkah melakukan penyelidikan menghasilkan dua varieti benih padi baharu yang lebih tahan lasak dan rintang penyakit.

Objektif penghasilan dua varieti UKMRC2 dan UKMRC8 itu bertujuan untuk meningkatkan potensi hasil padi berbanding benih padi sedia ada.

UKMRC2 dan UKMRC8 ialah varieti benih yang dilahirkan melalui progeni kacukan berbalik terkehadapan padi liar, *Oryza rufipogon* sebagai induk betina dengan padi tempatan, kultivar MR219 sebagai induk jantan pada kacukan pertama.

Hasil kajian Penyelidik UKM, **Prof. Dr. R. Wickineswari** bersama bekas penyelidik Institut Penyelidikan dan Kemajuan Pertanian Malaysia (MARDI), Abdullah Md. Zain itu mendapati hasil tuaian padi varieti tempatan dapat ditingkatkan 20 peratus menggunakan gen yang terdapat dalam spesies padi liar.

Mengulas lanjut, Dr. R. Wickineswari berkata, spesies padi liar daripada alam semula jadi mempunyai kemampuan dalam meningkatkan ciri seperti ketahanan kepada banjir, penyakit, serangan perosak dan mempengaruhi peningkatan hasil.

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VARIETI padari RC2 dan RC8 hasil penyelidikan UKM yang ditanam di Semanggol, Perak.

Katanya, penyelidikan peringkat nasional ini telah dijalankan sejak 16 tahun yang lalu dengan biayaan Kementerian Pendidikan Tinggi dan Kementerian Sains, Teknologi dan Inovasi (MOSTI).

Bermakna, ia adalah penyelidikan yang pertama kali dilakukan di negara ini menggunakan spesies padi liar yang berasal dari Kelantan itu sebagai induk betina.

Proses pendebungaan terkawal telah dijalankan beberapa kali dan ditulenkan sebelum benih asas ini dihasilkan.

"Ini boleh dikatakan sebagai satu penyelidikan yang agak luar biasa kerana kebiasaanya pembiakbaka hanya akan menggunakan titisan sedia ada bagi tujuan kacukan dan pemilihan.

"Tetapi kajian ini berbeza dari kebiasaannya apabila kami menggunakan gen daripada spesies padi liar yang diambil daripada aksesi yang disimpan di Institut Penyelidikan Beras Antarabangsa (IRRI) di Filipina," katanya pada majlis pelancaran varieti benih padi tersebut di Simpang Ampat Semanggol, Semanggol, Perak baru-baru ini.

Mengulas lanjut, Dr. R. Wickineswari menjelaskan, kedua-dua benih ini mampu hidup walaupun ditenggelami air selama dua hingga tiga minggu.

Melalui ujian yang dilakukan di makmal, anak benih yang disemai dalam pasu masih hidup walaupun telah dibiarkan didalam air selama 14 hari.

Justeru, ia menunjukkan varieti ini tahan kepada banjir melalui genetik yang terdapat didalam spesies liar yang toleran terhadap air.

"Dari segi ujian ketahanan kepada penyakit pula menunjukkan varieti ini rintang kepada penyakit seperti karah daun.

"Dalam kajian yang dilakukan di makmal dan di rumah hijau, kita telah menjangkitkan anak pokok dengan kulat dan mendapati simptom atau kesan jangkitan itu kurang," ujarnya.

Kajian mendapati UKMRC-2 mempunyai potensi hasil sebanyak 12 tan sehektar dengan kerintangan kepada penyakit yang baik terutamanya kepada karah daun, kualiti pulangan pengilangan dan kepala beras yang tinggi iaitu sekitar 78 peratus dan 82 peratus serta mempunyai kadar kemandirian (SR) dalam keadaan bertekanan banjir yang sangat baik sehingga 88 peratus.

UKMRC8 pula mempunyai potensi hasil sebanyak 14 tan se hektar dengan kualiti pulangan pengilangan dan kepala beras yang tinggi antara 77 peratus dan 79 peratus serta mempunyai peratus pemanjangan (EP) dalam keadaan bertekanan banjir yang sangat baik (57 peratus) dengan rendaman selama 14 hari semasa fasa vegetatif.

Selain itu, kajian yang melibatkan kos kira-kira RM3 juta ini turut melibatkan pelajar lepasan siswazah iaitu lima pelajar ijazah sarjana muda, ijazah kedoktoran dan tiga pasca kedoktoran.

Berdasarkan dapatan data hasil penanaman 26 varian di Gurun, Seberang Perai dan Sungai Besar, UKMRC2, UKMRC3, UKMRC4 dan UKMRC8 telah didaftarkan sebagai varieti baharu tanaman pada Oktober 2014.

UKMRC2 dan UKMRC8 kemudiannya dipilih untuk menjalani Ujian Penentusahan Setempat (LVT) iaitu penanaman di sawah petani di 14 kawasan jelapang dan bukan jelapang di seluruh negara selama tiga musim.

Dua varieti itu seterusnya telah dibentangkan dan diluluskan oleh Jawatankuasa Teknikal Bantuan Kerajaan Kepada Industri Padi dan Beras (BKKIPB) pada 9 Februari lalu.

Semasa proses LVT dijalankan, UKM telah memberi benih kepada petani untuk ditanam mengikut prosedur operasi standard (SOP) yang ditetapkan oleh Jabatan Pertanian dan dipantau oleh UKM dan rakan industri.

Dalam perkembangan lain, beliau berkata, pihaknya sedang menjalankan penyelidikan bagi menghasilkan benih padi yang tahan kepada kemarau.

Objektif penyelidikan itu dijalankan adalah bagi menghasilkan benih padi yang toleran kepada tekanan abiotik sekali gus menstabilkan industri padi tempatan yang kian terjejas akibat pemanasan global ketika ini.

Menurutnya, penyelidikan yang turut melibatkan kerjasama daripada IRRI itu, kini sedang dalam peringkat ujian di sawah bersama petani dan dijangka mengambil masa selama dua hingga tiga tahun lagi.

Dalam pada itu, pesawah berpendapat , ancaman penyakit padi terutamanya karah daun dan bencana alam seperti banjir sering menjadi kebimbangan petani kerana boleh menjejaskan hasil padi sekali gus mendatangkan kerugian kepada mereka.

Bagi pesawah yang mengusahakan tanaman varieti padi UKMRC2 dan UKMRC8, **Khairul Abd. Rahman**, 33, dia berpuas hati dengan karakteristik varieti padi baharu itu yang lebih mudah dijaga serta mampu meningkatkan hasil pengeluaran.

Katanya, padi yang diusahakan sejak musim dua 2017 dengan keluasan setengah suku hektar bagi setiap varieti padi itu memberikan hasil yang berbeza berbanding padi sedia ada kerana hanya memerlukan penjagaan dari segi perlindungan musuh dan penyakit.

Gambar **AMIR KHALID**

KERATAN AKHBAR
THE STAR (VIEWS) MUKA SURAT : 28
TARIKH : 09 APRIL 2018 (ISNIN)

Include science in political debate

ON April 3, Science, Technology and Innovation Minister Datuk Seri Panglima Wilfred Madius Tangau launched "Science Outlook 2017", a study undertaken by the Academy of Sciences Malaysia (ASM). This is a review and update of an earlier study, "Science Outlook 2015 – Action Towards a Vision", which described the prevailing status of our science, technology and innovation (STI) infrastructure and processes.

The 2015 study clearly described our enduring and entrenched weaknesses in six strategic areas – STI Governance; Research, Development and Commercialisation (RD&C); STI Talent; Engineering Industries; STI Enculturation; and Strategic International Alliance.

The following are a few examples of the findings:

> STI Governance: need to acknowledge the critical function of governance... such as "evaluation of national and societal needs, including the industrial, socio-economic and political landscape within the context of STI"; "Adaptation of various STI policy measures"; and "Solving the issues identified through course correction and strategic solution" and

> RD&C: Malaysia has relatively low R&D investments (RM10.6bil or 1.13% gross domestic expenditure on R&D (GERD) per GDP in 2012 compared to the average of 2.04% in G20 countries; and private sector participation in R&D is minimal, "limiting the opportunities to strengthen the R&D output for its commercial intent and application."

Sixteen major recommendations were made for improvement across the STI landscape, among them:

> Empower a centralised inter-ministerial STI coordination and monitoring body to garner stakeholder participation and establish a Parliamentary Select Committee on STI;

> Empower a centralised body to promote seamless RD&C implementation, management and monitoring to evaluate beyond traditional return on investment;

> Bridge the gap between policy and reality through review of implementation; strategise effective policy measures to retain STI talent;

> Aggressive and continuous dissemination of STI agenda to industry players to enhance their understanding and involvement;

> Establish strategic long-term plans on STI enculturation; and

> Forge and increase STI-focused international alliances to establish Malaysia's leadership and achieve excellence.

Science Outlook 2017 states in its conclusion that: "Malaysia's aspiration to be an advanced nation requires all sectors to have the capacity for developing knowledge capital to fuel Malaysia's drive to be an advanced economy."

It is unfortunate that most of the recommendations outlined in the Science Outlook 2015 have not been taken up by the relevant stakeholders, thus affecting the momentum of Malaysia's science, technology and innovation (STI) endeavours.

Science Outlook 2017 urged that the previous recommendations be implemented and new ideas be taken on board, arguing that Malaysia must have a robust STI ecosystem for "the country to navigate the deep waters of knowledge-based economy..."

The current status of our STI ecosystem is not one that engenders confidence for an "innovation-driven, private sector-led" economy that is Malaysia's aspiration. Neither is it an encouraging situation for the scientific community in Malaysia, already disappointed by the lack of commitment to S&T and R&D in the Eleventh Malaysia Plan despite the emphasis therein on innovation.

Despite the plea for political parties to pledge commitment to STI development by Prof Datuk Dr Ahmad Ibrahim, "Science matters in manifestos" (*The Star*, March 31), none have shown such in their election manifestos. There is justification therefore to conclude that STI has no place in Malaysian politics – and that is a great pity.

In 2012 , *myForesight*, the magazine of the Malaysian Foresight Institute (MFI), published four future best-to-worst case scenarios for "Malaysia's Different Paths Towards 2020":

> Scenario 1 – A star is born, where Malaysia continues on the path of social and economic reforms through the successful implementation of Government and Economic Transformation Plans.

> Scenario 2 – Entrapment, where Malaysia's effort to achieve good governance and create an innovative culture does not succeed because the economy fails to transform to higher value-added sectors.

> Scenario 3 – Don't worry, be happy in which Malaysia is a lackadaisical society stuck in neutral, moving along on a "business as usual" mode with modest growth.

> Scenario 4 – Sealed in a time capsule, where Malaysia's economic transformation plan is not supported by necessary reforms.

From the perspective of the STI axis, we are in the unhappy position of being in the "Don't worry, be happy" and "Sealed in a time capsule" situation.

This is what the two scenarios say respectively: "Due to our laggard attitude in innovation, slow development of human capital and failure to create a knowledge-based society, Malaysia remains a labour-dependent country, especially in the lower level of the industry", and "Malaysia makes limited and disjointed success in technology... The private sector reaction to the innovation initiatives introduced by the Government has been lukewarm. R&D is very much government-driven..."

The above are basically what Science Outlook 2015 and Science Outlook 2017 emphasised several years after the scenario study by the MFI.

What has gone wrong? I believe we have no issue with capacity for advice, but the capacity for advice must be matched with capacity for and willingness to act on good advice.

We now have the National Science Council (NSC), the apex body dealing with STI issues for the country chaired by the Prime Minister.

To demonstrate our serious commitment to enhancing the STI ecosystem and strengthening our STI capacity to push Malaysia out of the middle-income trap and become an economy that is innovation-driven and private sector-led, the NSC must not be just an advisory body.

It must be an action council like the Economic Action Council.

Since a council is only as effective as its supporting secretariat is competent, the NSC secretariat must have the legitimacy, authority and capacity to support the council with incoming advice, policy and strategic issues, development of the national STI agenda and implementation oversight.

This is also basically the message of both the Science Outlook 2015 and 2017.

The scientific community looks forward to a quick return to normalcy after election fever subsides and the largess associated with electioneering stops.

The government of the day can reposition STI in the national priority, strengthen our STI ecosystem, rationalise support for GERD and RD&C and prevent stagnation in our national innovation agenda.

This is the only way to prevent our steady progress towards a possible fifth scenario: Malaysia for sale!

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