Makoto Kinoshita of the Education Ministry's Planning Research Section. "However, we are members of the Science and Technology Agency's inquiry committee, and they participate in ours. Their walls are lined with our documents, and we have all of theirs.

The potential for disparity exists, but at present, we are administering these cases in close cooperation."

Japanese scientists are expected to keep asking for more elbow room, probably not in vain. In the immediate future, the special inquiry commi-

tees of each governing authority will continue to make do with their present tight cooperation and consultation. But when the volume of requests increases sharply, as is also expected, confusion may be inevitable.

—Alison M. Murray

BUDGET UP 90%

BIOTECH TAKING ROOT IN JAPANESE AGRICULTURE

TOKYO—The Japanese Ministry of Agriculture, Forestry and Fisheries' new budget for biotechnology has jumped more than 90 percent, to 1.2 billion yen (\$5.2 million). This contrasts with a planned 20 percent increase in overall government spending on biotechnology.

The Ministry has already used some of its new allocation to establish a biotechnology section. "It was high time for this office to be set up to coordinate the various sections of the Ministry and to cooperate with industry. After all, the agricultural sphere is fundamentally biological, and we administer several biotechnology-related research centers," says director Makoto Kamewaka.

The next step, scheduled for this month, will be the formation of a Council for the Promotion of Advanced Biotechnology Research and Development, with representatives from the Ministry, industry and academia. Kanekawa envisages this council as a link between the private sector and government. "We will provide the council with 6 million yen (\$26,000) to determine concrete policy and procedures for cooperative activities leading to stimulation of the industry," he says.

Among the five-year projects due to start over the next few months:

- Joint government-industry research in cell fusion to develop cells with high productivity of such food colorants as anthocyanin, vegetable cells with weedkiller resistance and antipathogenicity, and salt-resistant yeasts for soy sauce production.

- Development of basic cell culture technology to produce new agricultural chemicals. The agriculture industry is aiming at large-scale extraction of insect pheromones with high biological activity, and at development of antipathogenic agents for crops.

- Application of bioreactor systems in the food industry.

- Commercialization of simple diagnostic testing for livestock diseases using enzymatic immunology techniques.

- Stocking of seeds and manage-

ment of their genetic information, centering on the National Institute of Agro-Biological Resources (NIABR) in Tsukuba. The stocks at the Institute account for almost 30 percent of the 99,000 varieties preserved at various government centers. While the budget for this project has not increased greatly over previous allocations, the Ministry plans to open both its present stocks and those developed through genetic engineering to the private sector. The government will also establish a lectureship on resource botany, an undermanned field, at Tsukuba University next year. Some of the enterprises keenly interested in this project include Kirin Brewery, Kyowa Hakko, Suntory, Mitsubishi Chemicals, and Asahi Chemicals. These companies jointly

formed the Japan Association for Protection and Development of Plant Varieties in 1981. Says one company spokesman, "The stocks held in the U.S. are enviable. We would like to build up to that level in Japan, but whether it will be possible remains to be seen."

- Elucidation of DNA sequencing in agricultural organisms, including the formation of a gene library. The amount of 122 million yen (\$530,000) has been set aside.

- Reduce the gap in levels of expertise between government and industry researchers. To achieve that goal, 40 scientists from agricultural enterprises will be trained at NIABR and at the National Agricultural Research Center in Mie prefecture for 2 to 6 months.

—Alison M. Murray

Despite breakthroughs in biotechnology,

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DOESN'T
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