

FEEDBACK

from the field

This bulletin provides information about application of AVRDC's technologies in the field and other topics of interest regarding vegetable production and consumption constraints around the world. It is issued quarterly. We welcome everyone to share any interesting news about vegetables – please send a short article with photos to tech_dissemination@worldveg.org. Thank you!

Use of AVRDC's pepper genetic resources: feedback from the partners



Chili hybrid 'VNR273', which is based on AVRDC germplasm, in a farmer's field in Andhra Pradesh, India

Peppers (*Capsicum* spp.) are important cash crops for smallholder farmers in developing countries. Hot pepper (chili) dominates world spice trade and sweet pepper has become a popular vegetable and cash crop in the tropics for smallholders. Over the past 25 years, AVRDC – The World Vegetable Center has focused on improving *C. annuum* species (both hot and sweet peppers) by incorporating pest resistance, developing male sterile lines and increasing heat tolerance.

More than 30,000 germplasm materials were distributed to 122 countries in 2001-2013; 20% of them were genebank accessions and 80% improved advanced lines. This

germplasm was: (i) subjected to selection and purification according to local trait preferences and subsequently released as new varieties through national varietal release procedures, (ii) used (possibly after further selection) as parental lines in hybrid development, or (iii) used as sources of traits (such as multiple disease resistance) in crosses to develop new breeding lines. Between 2005 and 2012, based on AVRDC's germplasm and improved lines, 51 open-pollinated and hybrid cultivars of hot and sweet peppers were released and commercialized by both public and private sector institutions in South Asian, West African, Central Asian and Caucasus countries. We have learned from seed distribution experiences that the impacts from our



Chili hybrid 'VNR38', which is based on AVRDC germplasm, in a farmer's field in Gujarat, India

improved lines can be increased in developing countries when people working in both the public and private sectors have enhanced skills. India is a good example.

The most remarkable commercial successes with AVRDC CMS (Cytoplasmic Male Sterility) lines and other improved lines have been achieved by seed companies. For example, VNR Seeds, Chhattisgarh, India started using AVRDC's improved hot pepper lines in early 2000. Since then, this company has used AVRDC-supplied lines to develop and commercialize hybrids for different market segments in India. Hybrids based on AVRDC germplasm were also commercialized by other seed companies like Namarari Seeds and East West Seeds, and by many national agricultural research institutions in different countries.

Data on hybrid seed sales from different seed companies showed that hybrids developed from AVRDC germplasm

were planted on more than 30,000 ha during 2012-2013 in different regions of India by approximately 75,000 smallholder farmers, each of whose land holding is usually less than 0.5 ha.

As an example, 'VNR38,' a pickling variety, was adopted in Gondal district of Gujarat by a number of farmers. Mr. Mohammadbhai Jalalbhai Sheikh from Tithwa village, Gondal, Gujarat planted this pickling chili hybrid in his 0.4 ha field in 2012-2013. The variety grew up to 2.44 m tall and still continued producing fruit. At the time of the interview, he had harvested 24,974 kg fresh peppers from the field and still expected to reap an additional 5,900 kg by the end of the harvesting season. At a selling price of INR25.3/kg, Mr. Md. Sheikh's commodity is worth approximately INR782,000 (USD12,300). It is indeed a very good income.

Source and photos:

Sanjeet Kumar, Pepper Breeding, AVRDC-The World Vegetable Center: Reddy MK, Srivastava A, Lin SW, Kumar R, Shieh HC, Ebert AW, Chawda N, Kumar S. 2015. Exploitation of AVRDC's chili pepper (*Capsicum* spp.) germplasm in India. *J. Taiwan Society Horticultural Sciences* 61(1): 1-9.

The roles of associations for chili agribusiness development in Indonesia



Different types of fresh chili sold at Pare wholesale market, Kediri, East Java

Chili is an important commodity for families and farmers in Indonesia. It has significant market share and is used as a flavoring for various products. Around 70% of the chili supply is for domestic fresh consumption and 30% is for industry to produce processed chili powder or dried chili. The main market is Jakarta and chili is supplied from West Java, Central Java and East Java as well as from South Sumatra and Lampung to fulfill demand. However, the price of chili in Indonesia often fluctuates.

Chili prices vary among regions due to different harvesting seasons. Generally the red peppers are for fresh consumption because the current storage system is still not able to store the fresh chili for more than two months. This situation is exacerbated in Indonesia because farmers have limited understanding of risk tolerance.

To deal with chili profit uncertainties, farmers need to adopt risk management strategies that are in accordance with their own risk attitudes, preferences, businesses and family conditions. Inadequate management skills and the absence of strong farmer associations/organizations in chili agribusiness lead to economic losses.

Farmer associations can play a critical role in making input and output markets transparent and competitive. Better understanding of the costs and margins of the chili value chain is needed.



Green fresh chili sold at Pare wholesale market, Kediri, East Java

In 2008, Indonesian chili farmers were facilitated by the Ministry of Agriculture to form an 'Asosiasi Agribisnis Cabai Indonesia' (Agribusiness Association for Chili in Indonesia, AACI). This association provides business information and communication, especially with regard to chili, to establish mutually beneficial cooperation among growers.



Representative members of the Agribusiness Association for Chili in Indonesia (AACI) attended the bi-annual meeting in East Java to share chili production and marketing information

The association is independent and aims to strengthen and empower farmers in agribusiness, especially for chili as a commodity.

However, to overcome the chili price fluctuation, a prediction of the crop hectareage is needed. AACI has set up a program with the planting schedule and planting quota for each area. A database with the information on chili cropping from the village, sub-district and provincial level is established so that the supply of chili from different regions can be predicted. The price formation mechanism still depends on the balance between demand and supply.

The East Java Chili Agribusiness Association has developed an information-sharing system and aims to resolve depressed market conditions. The association members from 19 districts meet twice a year to share and discuss current and projected planting areas, incidence of pests and diseases and market price. The Agricultural Extension Service (*Dinas*), Bank Indonesia and Minister of Agriculture cover part of the meeting costs in exchange for access to the association's data. They also provide advice to the association. Three representatives from each district attended the meetings and then shared the information with their respective localities. The focus is on red and curly chili and aims to restrict cultivated areas to around 12,000 ha per season in East Java. This is to ensure that farmers would normally fetch at least

IDR8,000 (USD0.6) per kg, which is the actual break-even point for chili production in this targeted area.

This information-sharing system was established with aims to influence planting decisions by farmers in East Java, reduce the incidence of oversupply in red and curly chili markets, and reduce the chances for encountering low market prices. However, the effectiveness of information sharing is questioned, since the group meets only twice a year. To improve the outreach as well as the relevance of its service, the Provincial and District Agricultural Service (*Dinas*) could consider working with the East Java Chili Agribusiness Association. Use of radio and television for information dissemination can reach a large audience in a timely manner.

Planting decisions should be based on an understanding of short-term market outlook scenarios, i.e., farmers planting red or curly chili should understand the price prospects 3-4 months in the future, when their chili reaches harvesting stage. Timely access to relevant market outlook information and analysis can have significant positive impacts on farmers' incomes. If farmers can anticipate adverse market scenarios at future harvesting times, they will reduce planted areas and grow other crops instead. Likewise, if there is a reasonable prospect that future prices will be high, farmers will expand cultivated areas to take advantage of favorable market conditions. If many farmers adjust cultivated areas accordingly, then significant losses or marginal profits could be avoided.

Source and photos:

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