News Release

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BASF's light stabilizer for greenhouse films helps Vietnam farmers increase crop yields, reduce waste

- **Tân Hùng Cơ and BASF contribute to Vietnam's call for solutions in high-tech agriculture**
- **Tinuvin® NOR™ 371 light stabilizer from BASF increases durability of greenhouse films to withstand weathering**

Hong Kong – April 30, 2019 – BASF and Tân Hùng Cơ Masterbatch Manufacture Co. are working to help farmers increase their yields and save resources with more durable greenhouse films. Tân Hùng Cơ, a leading manufacturer of additive masterbatches for plastic films in Vietnam, is now using BASF's plastic additive Tinuvin® NOR™ 371 to increase durability and lifespan of plastic greenhouse films made from low density polyethylene. With Tinuvin NOR 371, greenhouse films can withstand weathering for at least three to four years.

The government of Vietnam has announced a VND100 trillion (approximately $4.4 billion) package to develop hi-tech agriculture. Better flower and fruit varieties are being developed, and field production is gradually moving towards protected cultivation, precision and automatic irrigation, computerized crop management systems, and applying greenhouse technologies.

To get the most out of greenhouse technologies, light stabilizers need to be added to the polymer during manufacturing of greenhouse films. These stabilizers make the films resistant to the intense sunlight and heat that develops at the contact points with the metallic greenhouse frame. If not, plastic films can become brittle and break within a few weeks.

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“Natural weathering conditions affect the durability of polymers used outdoors, and greenhouse film poses an additional challenge because of the crop protection agents used in greenhouses,” said Hermann Althoff, Senior Vice President, of BASF’s Performance Chemicals unit in Asia Pacific. “Our Tinuvin NOR 371 light stabilizer lives up to the greenhouse challenge and extends the useful film life thus reducing cost for the growers and waste for the environment.”

Tinuvin NOR 371 provides durability to greenhouse films by preventing degradation from ultraviolet (UV) rays, thermal stress and oxidation. With durable films that last for several seasons, farmers can cover greenhouses for growing chrysanthemums, roses and strawberries for the export market – thereby increasing yields of profitable crops while saving resources and reducing waste.

Additionally, Tinuvin NOR 371 helps to ensure greenhouse films can be used in a variety of growing conditions. Although the sulfur compounds approved as agricultural products to prevent and combat fungal diseases are ecologically safe, chemically they deactivate the light stabilizers and accelerate their breakdown.

To counter this deactivation of light stabilizers, stabilizers for greenhouse films – based on BASF’s NOR technology – are added which are particularly resistant to sulfur compounds and other agrochemicals. As a result, Tinuvin NOR 371 offers stability that enables farmers to produce profitably for several growing seasons.

About BASF Plastic Additives

BASF is a leading supplier, manufacturer and innovation partner of plastic additives. Its comprehensive and innovative product portfolio includes stabilizers which provide ease in processing, heat and light resistance to a variety of polymers and applications including molded articles, films, fibers, sheets and extruded profiles. More information about plastic additives: www.plasticadditives.basf.com.

BASF Plastic Additives is part of BASF’s Performance Chemicals division. The division’s portfolio also includes Fuel and Lubricant Solutions, Kaolin Minerals, as well as Oilfield and Mining Solutions. Customers from a variety of industries including Chemicals, Plastics, Consumer Goods, Energy & Resources and Automotive & Transportation benefit from our innovative solutions. To learn more, visit http://www.performancechemicals.basf.com.

About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The approximately 122,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world. Our portfolio is organized into six segments: Chemicals, Materials, Industrial Solutions, Surface Technologies, Nutrition & Care and Agricultural Solutions. BASF generated sales of around €63 billion in 2018. BASF shares are traded on the stock exchange in Frankfurt (BAS) and as American Depositary Receipts (BASFY) in the U.S. Further information at www.basf.com.