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Wheat crop health was monitored during December 2015 to February, 2016 by scientists of Indian Institute of Wheat and Barley Research (IIWBR), State Agricultural Universities, Directorate of Plant Protection Quarantine and Storage, Directorate of Wheat Development and officers of Department of Agriculture of different states. Overall wheat crop health is very good. Advisory was issued by ICAR-IIWBR, Karnal, DAC, G. O. I. and State Department of Agriculture of northern states helped in managing stripe rust in northern India. The detailed status of different diseases and insect-pest is given below:

Punjab and Haryana

- During 2nd week of December, 2015, Dr. Jaspal Kaur, Plant Pathologist of PAU, Ludhiana conducted survey in Punjab and no rust was observed in any farmers' field. During December 12-13, survey was conducted by Dr. Indu Sharma, Director, IIWBR, Karnal in Punjab and Haryana, no rust was observed.
- On December 18, 2015, Dr Jaspal Kaur (Plant Pathologist) and KVK scientists of Ropar surveyed Sh Anandpur Sahib area. Stripe rust (one foci) was observed first time on December 18, 2015 on variety HD 2967 in a patch of one sq meter in village Brahampur near Shri Anandpur Sahib in Punjab. The crop was sown on Nov, 3. 2015. Stripe rust was also observed in small patch at village Dabkhera on var., HD 2967 sown on 4-11-2015.
- Dr. S. C. Bhardwaj (Head, ICAR-IIWBR Regional Station, Flowerdale, Shimla), Dr. Hanif Khan, Dr. O. P. Gangwar and Dr. Parmod Prasad of ICAR-IIWBR Regional Station Flowerdale, Shimla visited Yamunanagar area of Haryana on December 18, 2015. Rust or other diseases were not observed on wheat at villages, Dinarpur, Pathreri, Sahasapur and Dabkauri.
- Dr. Jaspal Kaur, Dr Damanjit Kaur of PAU, Ludhiana alongwith KVK scientists of Ropar visited the stripe rust spots at village Brahampur near Anandpur Sahib in 3rd week of December. Incidence of stripe rust in a patch of 1 square meter was observed in village Dabkhera on var. HD2967.
- Dr. Indu Sharma, Director IIWBR, Karnal and Dr Mangal Singh, Technical Officer conducted survey on January 28, 2015 in Haryana and Punjab. Stripe rust (10-40S) was reported in patches in Brahmpura village near Nangal in Punjab.
- On December 28 2015, Dr. M.S. Saharan, PI-Crop Protection, IIWBR, Karnal conducted survey between Karnal to Hisar. Wheat crop health was very good and no disease was observed.
- On 29.12.2015, a survey was conducted by Dr. Jaspal Kaur, Mr. Parminder Singh, on the Ludhiana, Nawashahar, Langroya, Saroa block, Nangal, Anandpur Sahib, Ropar and back route. In SBS Nagar, no wheat field was infected with stripe rust. In Nangal, Dr Ashok Kumar, Mr Harjot Singh from KVK, Ropar and Mr. Barinder Singh, from Agriculture Department also joined the team. From Nangal to Sri Anandpur Sahib, three more fields infected with stripe rust were observed. Small patches were observed in villages Dabkhera

and Daroli on three fields of HD2967. About half acre field of HD 2967 was infected with stripe rust (60S) in village Pattii Dargahi near Bela Ramgarh.

- Dr J.S. Kular, Prof of Entomology (Ext.) and Dr Beant Singh (Assistant Entomologist), Wheat Section, PAU, Ludhiana surveyed the wheat crop on 29 December, 2015 in different villages adjoining Dasua and Mukarian. Minor incidence of pink stem borer was observed in most of the places visited (village Nausehra Pattan, Amma Mangat etc.) except village Kotla khas (3-5 % damage) in Hoshiarpur district. The crop was sown by broadcasting of seed after rotary tillage in most of the fields surveyed. The farmer's fields were surveyed by Dr. Sudheer Kumar, Principal Scientist (Plant pathology), and Dr. Subhash Katare (Entomologist), IIWBR, Karnal along with the team from Directorate of Plant Protection Quarantine and Storage (Dr K S Kapoor, Deputy Director) on 7th Jan. 2016 for presence of rusts in the route starting from Karnal to Ropar via Yamunanagar. On 8th Jan. 2016, Dr Jaspal Kaur, PAU Ludhiana joined the team and survey was conducted in Nurpur Bedi and Anadpur Sahib block of Ropar (Punjab). Stripe rust foci (20-60S) was observed in few farmers fields in Abhiyana Kala, Bajrur, Kumbewala in Ropar. Aphids infestation was observed in few fields near Banur in Punjab. Dr. B.R. Kamboj, Dr. R. S. Taya, DES, KVK, Damla and Officers of State Department of Agriculture, Yamunanagar reported stripe rust in 1-2 fields in villages, Ishopur (Jagadhari), Laharpur (Sadhaura), Lawana (Mustafabad), Manakpur (Sadhaura), Khanpur (Mustafabad) during 7-14th January, 2016.
- On January 14, 2016, Dr.M.S. Saharan surveyed Yamunanagar and Panchkula area of Haryana for monitoring wheat crop health. Stripe rust was observed in one field at village Ishopur in var. HD2967.
- A team of scientists (Drs. S S Karwasara, I. S. Panwar, Dev Raj) of CCS HAU, Hisar monitored the wheat crop health in the districts of Kaithal, Kurukshetra, Karnal and Ambala during January 15-16, 2016. The varietal pattern in these areas was HD 2967 (>80%), PBW 343, WH 1105, WH 711, PBW 550, HD 3086, Barbet and HD 2851 (mostly where the crop is under late sown). More than 80% area is grown under normal sown conditions. About 70% area is sown under zero tillage conditions. No stripe rust was observed. Stripe rust in traces was observed in few fields in Noorpur Bedi area in Ropar district where varieties HD 2967 and HD 3086 which grown in between poplar trees.
- Till 19th January, 2016, Dr. Jaspal Kaur reported stripe rust foci in 43 villages in Ropar, 22 villages in Hoshiarpur, 5 villages in Pathankhot and one foci in one village of Patiala and SBS Nagar.
- Mr. Vipin Panwar, SRF of IIWBR, Karnal visited TPN planted at Saharanpur on January 19, 2016. No rust was observed.
- On January 21, 2016, Dr. Indu Sharma and Dr. M.S. Saharan surveyed Karnal, Kurukshetra, Ambala and Panchkula area for stripe rust. No rust was observed.
- Loose smut in var. HD 2967 was reported in one farmer's field in village Kodwa Khurd (Ambala) by Dr. Upasana Singh, Co-ordinator, KVK, Ambala on January 22, 2016.
- The farmer's fields were surveyed by Dr. Sudheer Kumar, IIWBR, Karnal and Dr. Parmod Prasad, IIWBR Regional Station Flowerdale, Shimla on January 20 and 22, 2016 for presence of rusts in Mohali, Ropar, Garhshankar and Hoshiarpur and Pathankot area of Punjab. No rust was observed.
- Dr. Mangal Singh did not observe any rust on January 28, 2016 in villages Sanewal, Khanna, Mandi Gobindgarh, Sirhind, Rajpura, Shahbad etc.
- On 29 and 30 January 2016, survey was conducted by Dr Rajender Singh and Dr O. P. Bishnoi of CCS HAU, Hisar in Kaithal, Kurukshetra, Ambala, Yamunanagar and Panipat districts of Haryana. Stripe rust foci was noticed only in 3 sq. metre area in the field of Mr Narender Kumar Son of Sh Phuda Ram Kamboj of Ratangarh (Yamuna Nagar). No disease observed on var WH 1105 planted at Saini Majra, Damla, Chirdhana and Biholi. Loose smut was observed in traces in Rampur raiyan (Naraingarh, Ambala).

- Stripe rust was observed in village Nahouni, Ambala by DDA, Ambala on January 30, 2016 on var. HD 2967. Dr. M. S. Saharan surveyed the area in Ambala, Jirakpur and Mohali on January 31, 2016. The infected field at village Nahouni was also visited and samples were taken for analysis.
- On February 2, 2016, Dr Mangal Singh visited Kalsora village in Karnal where stripe rust was reported.
- A team of scientist comprising of Dr Beant Singh (Assistant Entomologist) and Dr Jaspal Kaur, Plant Pathologist, Department of Plant Breeding and Genetics, PAU, Ludhiana surveyed the wheat crop on 1 February, 2016 in different districts of Punjab enrouting Khanna, Rajpura, Banur, Morinda, Machiwara Bela and adjoining areas. Five per cent incidence of pink stem borer was observed in one field at village Khandoli (Rajpura). Moderate to severe incidence of aphid was observed some of the villages visited viz. Ramnagar (near Banur), Fatehgarh veeran (Machiwara) and Bela. Small patches of stripe rust were also recorded in villages Jhansli, Fatehgarh veeran (near Bela). In general, the wheat crop was healthy and free from all other insect pest and diseases of wheat.
- On February 4, 2016, Dr. Mangal Singh and Mr. Pankaj Singh surveyed Yamunanagar area and observed stripe rust at four farmers' fields in village Bakana. Dr. Jaspal Kaur observed stripe rust in TRAP Nursery at RRS, Gurdaspur and at farmers' field in Deenanagar (Gurdaspur).
- Monitoring team consisting of Dr. Vaibhav K. Singh, ICAR-IARI, New Delhi and Dr. Prem Lal Kashyap, Regional Station, ICAR-IIWBR, Flowerdale, Shimla and Dr. Ritu Bala, PAU, Ludhiana visited different wheat growing fields in Haryana and Punjab during 10-12 February, 2016. On 10th of February, survey team visited different wheat growing fields in village Darad, Badonda, Shantadi, Khanpur (Indri); Kheridavdalan, Sura, Badsami, Ban (Ladwa); Bakana, Radaur, Damla (Yamunanagar); Bhawakpur, Janetpur (Ambala) of Haryana and back to PAU, Ludhiana (Punjab). Stripe rust was observed in Bakana village of district Yamunagar (Haryana) on wheat variety WH 1105. Disease severity was up to 10S in 8-10 m^2 in the field of Shri. Sukhdev Singh. According to the farmer, seeds of var. WH 1105 were purchased from Yamuna Seeds and planted on 3rd of November 2015. Other areas were free of any rust and other diseases incidence.
- On 11 February, Dr. Ritu Bala from PAU, Ludhiana also joined the team for visiting different farmer's fields in Mukeriyan (Hoshiarpur), Jagatpur, Paniyar, Tibbadi, Harchowal (Gurdaspur); Jhajjan, Langowal (Hoshiarpur); Dinanagar, Pandhori, Talwandi, Kanwan, Nabale (Pathankot) of Punjab. Stripe rust was observed in Dinanagar, Pathankot on wheat variety HD 2967 (TS). On 12th of February, survey team visited different villages in Burj pakka, Sherian, Humbowal, Hyatpur, Bairsaal kalan, Hedobait Kotala, Chakloahda (Machhiwada); Fatehgarh, Virawan, Anantpur Shib, Debkhera, Ajouli (Roapr) of Punjab. Stripe rust was observed in many fields of Chakloahda village of Machhiwada (Punjab) on wheat variety PBW 550 and HD 2967. 10S, 20S, 40S and up to 60S intensity of stripe rust in patches of 8-10 m^2 was recorded on PBW 550.
- Dr. S. S. Karwasra (HOD) Plant Pathology, Dr. I. S. Panwar (Principal Scientist) Genetics & Plant Breeding and Dr. Bhagat Singh (Asstt Wheat Agronomist) went to the field of Sh. Sukhdev Singh S/O Sh. Raghunath, village Bakana near Krishi Vigayan Kendar, Damla District Yamuna Nagar along with Dr. R. S. Taya (E.S., Plant Pathology) on February 16, 2016. The farmer has planted WH 1105 in 3 acres and his brother planted wheat var. HD 2967 in neighbouring field. In HD 2967, stripe rust severity in the range of 30S-40S just 4-5 meter distance from field of WH 1105. The farmer has purchased seed from Yamuna Seeds, Indri Karnal on which date of packaging was 2014. There were two types of plants one with red auricle i.e. original character of WH 1105 and other plants in which no auricle colour is there. Stripe rust on plants in which there was no auricle colour and severity was 10S-15S. More over the farmer has sprayed Propiconazole 25EC in whole field and there was no

further spread of the disease in the field and disease was under control. No rust was observed in var. WH 1105 variety planted at KVK, farm, Damla.

- Dr. Sujay Datta, ISRO, Ahemdabad and Dr Mangal Singh, IIWBR, Karnal conducted survey in Ropar and Nawasahar districts of Punjab during 15-17 February, 2016. Stripe rust (10-60S) was recorded in few fields in village Raipur Majara (Nawasahar).
- Dr. Satyvir Singh Bajwa, PI, Social Science, ICAR-IIWBR, Karnal observed stripe rust on February 20. 2016 at two farmers fields in village Madinpur Dalel (Mukerian), Hoshiarpur.
- Wheat crop for incidence of diseases and insect pest was surveyed by Dr Jaspal Kaur, Plant Pathologist and Dr Beant Singh, Assistant Entomologist, Deptt of Plant Breeding and Genetics, PAU, Ludhiana on 24.2.2016 on the route Ludhiana-Ropar-Balachour road-Saroya-Langroya and adjoining areas. The incidence of stripe rust was observed almost in all the fields on the route upto Phillour but severity was very low (traces-10S). But in villages namely, Jagjeevan pur on balachour road, Kollgarh and Chankoui of Saroya block of district Nawashehar (Farmer's Name S. Avtar Singh and S. Amarjeet Singh) where three fields of around 2 acre were severely infected with rust (60S) and variety was HD2967. In the TRAP nurseries sown at KVK Langroya and KVK Ropar, symptoms of stripe rust were also observed. Incidence of aphid was above ETL level at all the locations under survey except at Lohatan and Rurki-kalan.

Jammu region of J & K

- On 30th Dec., 2015: Dr. M. K. Pandey (SKUAS&T, Jammu) surveyed the areas in the route starting from Anand Nagar to Udhywalla via Puni chak, Sari Rakhawllan, Gao Manahansa, Gajansoo and Margh. The presence of any stripe rust was not observed in any of the field of the farmers in the surveyed areas.
- An extensive survey was carried out on 16th & 17th January, 2016 by Dr. M. K. Pandey with Officers of Department Agriculture, J&K. On 16th January, 2016, fields were surveyed the areas in the route starting from Anand Nagar to Udhywalla via Puni chak, Sari Rakhawallan, Gao Manahansa, Gajansoo, Jiri and Mishriwalla (Jammu). During survey, stripe rust was observed on unknown variety with some pustules with 5S severity in Gaughmanhasa, Margh, Jammu. On 26th January, 2016, fields were surveyed in Jammu, Kathua and Samba areas via Raipur, Khandwal, Chatha, R S Pura, Arnia, Saikalan Ramgarh, Chadwal Rajbag, Khanpur and Kathua. Powdery Mildew observed in one field on PBW-175 with 20S severity and 20% intensity in field of 0.2 ha in Rajbag, Kathua. Leaf blight was also observed in Margh with 10S on Raj-3077.
- Dr. Sudheer Kumar, Dr. Parmod Prasad and Dr M. K. Pandey and Smt. Surishta Devi, Subdivision Ag. Officer, Command Area Development, Hiranagar, Kathua with her team surveyed Kathua and Jammu. Some patches of stripe rust were observed in Hiranagar block of District Kathua in Jammu region. Stripe rust was observed in traces in village Kunthal (Kathua). Stripe rust in few patches of 1-2 sq m with 60 – 80S severity was noticed in village Chuck Murli, Hiranagar and few fields in Hiranagar, Kathua. Stripe rust patches of 1-2 sq m with 60-80S severity was observed in village Jurui and Kharkara of Kathua in var. HD 2967.

Rajasthan

- Survey was conducted on 12nd, 16th and 17th February, 2016 in the area of Jobner, Chomu, Sahapura, Ajeetgarh, Paota, Goner and Bassi of district Jaipur and Tunga, Lalsot, Deedwan area of district Dausa by Dr P. S. Shekhawat and Dr Nitin Chawla to know the status of wheat diseases. No rust was observed in wheat and barley crops in the area surveyed. However, stripe rust up to 20S was reported on 10th Feb., 2016 by KVK, Pali in

wheat variety K-65 which is cultivating in canal areas of district Pali. In general, the incidence of flag smut was noted in traces to 5 % in village Kudiyakabas, Tatiyawas, Bassi , Jodhpura, Chitwari, Toda, Awadhpuri and Amarsar of district Jaipur and at Village Bichhya, Deedwana and Salempura of District Dausa. However, maximum 40 per cent incidence of flag smut was also noted in a field at village Bichhya of district Dausa. Loose smut in *traces* was also noted in few fields.

Himachal Pradesh

- Regular crop health information were received from the Director, Agriculture of HP.
- Surveys were conducted during the last week of December in Paonta and Nahan blocks of Sirmour of Himachal Pradesh by Dr. Dhanbir Singh, Principal Scientist, Plant Pathology, CSKHPKVV Regional Station, Dhaulakuan. No stripe rust was recorded anywhere in farmers field. Yellowing of wheat leaves was recorded in village Surajpur and Kolar in paddy fields. In few fields, termites attack was recorded in traces. No stripe rust was recorded in trap and SAARC nurseries.
- Dr. Dhanbir Singh noticed stripe rust on wheat variety HD2967 at farmers' field in village Devinagar near Paonta on 14.1.2016 in a small patch of 25 sq.mtr. of three bighas field. Moderate infestation of aphids was recorded in most of the fields. Yellowing of leaves was also recorded in all the fields under survey. Stripe rust appearance was recorded on variety Bhakhtwar 94 (5S) in SAARC nursery on 29.1.2016. Stripe rust was also noticed in variety Kohsar (5S) on 4.2.2016.
- Dr. S. C. Bhardwaj, Head, IIWBR Regional Station Flowerdale, Shimla conducted survey in village Jarora, dist. Bilaspur,H.P. on January 16, 2016. Stripe rust (60S) in patches of about 5 met. in three fields was noticed in var. HS 507. The infection appeared to be more than 30 day old. In other fields none of the rusts could be observed in Hamirpur and Kangra areas en route to Palampur.
- Drs. Pramod and Hanif Khan surveyed parts of dist. Sirmour during February 1-2, 2016. Few stripe rust pustules were observed on SAARC wheat disease monitoring nursery planted at Dhaulakuan farm. Stripe rust was observed only at one farmer's field in village Kolar of Nahan block on HD2967 on Feb.2, 2016.
- Surveys were conducted during 2nd and 3rd week of February in Nahan and Paonta Block to record the occurrence of stripe rust in farmers fields by Dr. Dhanbir Singh. Stripe rust severity was recorded on wheat variety HD 2967 (20S) in Kolar village, HD 2338 (60S) in village Bharapur, DPW 621-50 (40S) in Dhaulakuan, HD 2967(40S) in village Haripur Tohana. In trap plot nursery, all the entries were infected with stripe rust (5-10S) except HW1105 and WH 396. Similarly in SAARC nursery, all the entries were infected with rust (5-10S) except PBW-660, Punjab 85, HD 2189, Pak 81, Chakwal 86, Faisalabad and Inquilab.

Status of stripe rust and general performance of wheat crop in districts of Kangra, Una and Solan: Dr. Ashwani Kumar, Dr. (Mrs.) Vijay Rana, Dr. Sachin Upmaniyu, Dr. (Mrs.) Daisy Basandrai (CSKHPKV, Palampur) and Dr. Rippon Sood (PD, ATMA, District Kangra), ADOs form respective blocks conducted survey in Kangra and Una during December-January. The status of stripe rust is as under:

Kangra

18-12-2015: The survey was conducted at the field s of 11 and 2 farmers of Dehra Gopi Pur and Paragpur blocks, respectively. No stripe rust was observed in the fields visited. In general the germination of crop was good. However, farmers did not practice weed control measures.

30-12-2015: In blocks of Nagrota Surian and Indora block fields of 14 farmers were visited in villages Sukhnara, Baag, Sunehar. Stripe rust was not recorded in any of the villages.

Powdery mildew was recorded in traces under shady trees. Varieties HD 2967 is the main predominant variety being grown in areas of receding water of the Pong Lake. Tractor sown sowing and chemical weed control are followed.
04.01.2016:- The survey was conducted in different villages of blocks Lambagaon, Bhawarna and Panchrukhi. Fields of eight farmers were visited in villages Kotbala, Banehar, Balwara and Bodhal. Stripe rust was recorded at village Kotballa on variety HD 2967.
06.01.2016: The survey was conducted in block Indora. In all fields of 14 farmers were visited in villages Manjh Majhera, Mand, Palakhi, Bhogran and Beli. Stripe rust was recorded in the fields of varieties HD 2967 and HD 3086 but in very low severity (traces) at village Manjh Majhera.
02.02.2016: The survey was conducted in blocks of Nagrota Surian and Fatehpur in the fields of 5 farmers on varieties DPW 621-50, HD 2967 and local. Stripe rust recorded on variety local 40-60% severity in variety HD 2967, DPW 621-50, it was recorded in traces – 2% severity.

Una
28-12-2015: The survey was conducted on 28.12.2015 at village Amb, Akrot etc. No stripe rust or powdery mildew was recorded.
4-2-2016: Powdery mildew incidence (10-20%) was also recorded in DPW 621-50 at village Bhaira
7-2-2016: The survey was conducted at villages Panjawar, Gholi, Ghaluwal and Nadpur on varieties HD 2967, WH 711, Heera Moti and so called Local. Stripe rust ranging from 1-10% was recorded. Powdery mildew was also recorded in traces.

Solan:
04.02.2016: Survey was conducted in Nalagarh area. YR incidence upt 10 % was recorded in village Majra near Dhabota.

Uttarakhand
- Regular crop health information were received from the Director, Agriculture of Uttarakhand.
- Tarai/Plains of Uttarakhand were surveyed for stripe rust of wheat by Dr. Deepshikha, JRO, Plant Pathology and Dr. J.P. Jaiswal, Prof. Genetics and Plant Breeding on 31st December 2015 in different wheat growing areas, en route Bazpur (Kanora, Karbola and Tanda Azam), Kashipur (Dhanauri and Bhogpur), Gadarpur (Prem Nagar, Dhaulpur, Kiratpur, Daanpur, Bagwala and Bhagwanpur), Deneshpur and Rudrapur. The dominant varieties sown in the areas were HD 2967, WH 1105, WH 711 and PBW 502. The crop was found free from stripe rust at all the locations.
- Dr. Lakshmi Kant, Principal Scientist (Plant Breeding) and Dr. K.K. Mishra, Senior Scientist (Plant Pathology) surveyed Almora and Bageshwar districts on 14.1.16. It appears that in majoirty of areas under irrigated conditions, late sowing has been done. However, in rainfed areas wherever the crop have been sown in residual moisture, the germination is good and crop is in tillering stage. Further, the crop is clearly showing the effect of moisture stress, wherever the fields are having shallow soil depth. In other fields where the crop is sown with no residual moisture, no germination has taken place. At Darimkhol, near Someshwar the crop of variety VL *Gehun* 829 is in tillering stage and is in very good conditions. However, at Gagrigol near Garur the crop of VL 804 is in late jointing stage. No impact of temperature rise is visible on the wheat crop in these two districts. However, the impact of moisture stress (due to no rainfall) in rainfed areas is visible and may further aggrevated if no rainfall is recieved within 10-15 days. If rainfall is received the crop can still recover. However, in both the districts no rust incidence was observed.

- At Basbheeda, Almora, stripe rust incidence upto 5S to 10S was observed in few plants where improved varieties were planted. However, in the fields planted with VL *Gehun* 892, the crop is in early booting to booting stage and the fields were free from stripe rust. At Pechuni (Prempuri), Ganai, Almora, around 55 to 60% area was planted with VL *Gehun* 907 and the crop was at late jointing to early booting stage. The fields of VL *Gehun* 907 were free from stripe rust. Some fields were planted with farmers' own saved seed. The crop looked of some non-recommended improved variety but the name was not traceable. This crop was in late jointing stage and these fields were heavily infected with stripe rust and in some spots it was upto 80 to 90S intensity with about 50% prevalence. Few plants of VL *Gehun* 907 plants just adjacent to these fields also got stripe rust upto 30 to 40S. At Baralgaon, Ganai, Almora, around 50 % area has been planted with VL *Gehun* 907 and the crop was at late jointing to early booting stage. These fields were free from stripe rust. One field of WH 1005 was in flowering stage and was free from rust. One field of HD 2967 was in tillering stage and no rust was observed. At Chandikhet, Chaukhutiya, Almora the crop was at booting stage. The major area was covered with VL 804 which has spread mostly through farmer to farmer exchange of seed. Majority of the crop was free from rust incidence however, in few sporadic plants (may be offtypes), stripe rust upto 20-30S was observed. At Bhaatkot, the majority of fields were planted with improved variety and were in early flowering stage. These fields were free from rust. At Chinoni, Masi, the majority of fields were planted with improved variety and were in tillering stage. These were free from rust. At Binta, Almora, the crop was at early tillering stage and was found free from stripe rust.
- Wheat crop was monitored for rusts in the farmers'field by Dr. J. P. Jaiswal, Prof., Genetics and Plant Breeding and Dr. Kanak Srivastava, Jr. Scientist, Plant Pathology on 12th February 2016 enroute Kichha (Vill. Shankar farm (Bhanga), Chacher farm, Pipalia and Gurunanak farm (Bari), Sitarganj (Katangari, Bara, Jungle jogi ther and Nakha farm), Nanakmatta (Sara saria) and Khatima (Vill. Sara Saria, Jhankat, and Lohiyapul). The varieties sown in the areas were UP 262, DPW 17, HD 2967,VL 892, UP 2572, VL 907 and PBW 154. The crop health was good, in some places stripe rust was observed in traces. Powdery mildew was also observed at many farmers fields.
- Tarai/Plains of Uttarakhand were surveyed for stripe rust of wheat by Dr. Deepshikha, JRO and Dr. Bimla Kumari, SRF, Plant Pathology on 18th February, 2016 in different wheat growing areas en route Bazpur (Karbola and Tanda Azam), Kashipur (Corbett Sun City and Bhogpur), Gadarpur (Prem Nagar, Barirai, Dhaulpur, Daanpur, and Bhagwanpur), Deneshpur (Netaji nagar and Rambagh) and Rudrapur. The dominant varieties sown in the areas were HD 2967, DBW 17, PBW 550, PBW 502, WH 711 and PBW 226. The crop health was good and in some locations i.e Netaji nagar, Barirai and Rambagh, stripe was observed in the range of 30S to 40S.

Karnataka

- Wheat Crop Health Survey was conducted in Dharwad district of Karnataka on 29.12.2015 by Dr. P.V. Patil, Principal Scientist (Wheat Pathology) and Shri. Sudhakar V. Kulkarni, Technical Assistant, AICRP on Wheat, MARS, UAS, Dharwad. The crop grown under ranifed showed poor growth due to moisture stress and incidence of diseases was also very low. However, the crop which were given 2-3 irrigations have shown moderate incidence of leaf blight (12-24 under double digit). None of the fields visited have indicated the incidence of either leaf rust or stem rust. The area visited exposed severe drought during *Kharif* and moderate rainfall during *Rabi* season. Low to moderate incidence of insect pests such as stem borer, leaf folder and cutworm were observed. Survey was conducted in Belgaum district of Karnataka on 18.01.2016 by Dr P V Patil. None of the fields visited

showed either leaf rust or stem rust infection. However, leaf blight was observed in moderate form (00-12). Moderate incidence of aphids was noticed in few fields.

- Dr. O. P. Gangwar conducted survey in Karnataka during 1st week of February. No rust was observed at any farmers field. Wheat crop health survey was conducted by Dr. P. V. Patil in Dharwad and Belgaum districts of Karnataka on 18.02.2016. Seven roadside fields were visited. Wheat genotype, DWR 162 grown under irrigation in Amminbhavi village of Dharwad taluk (12 km away from Dharwad) was infected with leaf rust severity upto 40S followed by Gokak (Tq. Gokak, District: Belgaum) and Yaragatti (Tq. Saudatti) and Ugar (Tq. Athani, Dist: Belgaum) where leaf rust severity was upto 20S. Bread wheat grown in Ankali village (Tq. Chikkodi, District: Belgaum) did not show any leaf rust infection. Moderate aphid incidence was observed in all the fields visited.

Maharashtra

- Dr. B. K. Honrao, Plant Pathologist, ARI, Pune conducted survey during December-January in Pune area. Upto Dec 31, 2015, foliar blight was observed in Trap Plot Nursery on varieties *viz*., Bijaga yellow, Gulab, WH-147, Lal-Bahadur on lower leaves. Traces of aphids were also observed in ARI germplasm nursery and at ARI- Hol farm (Pune). In most of wheat growing areas overall crop health is good, no natural incidence of black and brown rust was observed in any location. No natural incidence of rusts was observed in the trap plot nursery. During this period, a survey tour was conducted in Pune district covering Saswad, Jejuri, Nira and Baramati talukas. Wheat crop is from flowering to milk stage. In most of wheat growing areas overall crop is good. No natural incidence of black and brown rust in any location. Trap nursery was also free from natural rust incidence. Foliar blight was recorded on Gulab, HW 2021, Bijaga yellow, WH 147, HI 8792, Raj 4488 and Raj 4489 with severity ranging from 01 to 35 . Aphid incidence was also observed on majority of farmer's fields, Hol farm, Trap Plot Nursery with low to medium populations.
- The observations related to pests were monitored and recorded by Dr. S. D. Patil, Entomologist and Dr. A. P.Padhye, Wheat Specialist at Niphad centre during January, 2016. The incidence of jassids on wheat was recorded between 26th Nov. to 2nd Dec. 2015. The peak incidence of jassids was recorded between 17th to 23rd Dec. 2015. The jassids population was monitored by installing yellow sticky traps in field. Number of young adult jassids stuck on the sticky traps was recorded. The symptoms of damage caused by jassids were recorded on crop as they suck the cell sap from the tender leaves causing pale yellowing. Population of jassids was also noticed on farmers' field. The incidence of aphids was noticed on crop sown in early November though the intensity and severity was low. However, higher built up of population of aphids was observed on the crop of sown in first fortnight of December. The peak incidence of aphids was recorded between 15th to 21st Jan. 2016. Heavy intensity of aphid i.e. 40-50 aphids/shoot/plant was noticed in grand growth stage of crop between 15th Jan. to 25th Jan.2016. Adequate plant protection measures were adopted for the control of wheat aphids. During 12-13 Feb. 2016, Dr. B. C. Game, Plant Pathologist, Niphad conducted survey in Amravati, Akola, Washim and Parbhani areas. No rust was observed in any farmers' field.

Madhya Pradesh: Dr. T.L. Prakasha, Scientist (Plant Pathology) observed blightening of earheads at one farmer's field on var. GW 322 in Harda area of MP during 1st week of February, 2016.

Gujarat: Dr. I.B. Kapadiya, Asstt. Res. Sci. (Plant Protection), Wheat Research Station, JAU, Junagadh-Gujarat conducted survey in Junagarh area during January-February and no disease was observed.

Eastern UP: During January, Dr. S.P. Singh, Plant Pathologist, NDUA&T, Faizabad observed yellowing in rice-wheat cropping system after first irrigation. Seedling blight was also observed in some fields and after isolations. *Bipolaris sorokiniana* was found from the seedlings. Foot rot and root rot were also observed in some of the fields. Dr. S.S. Vaish of BHU, Varanasi conducted survey in the vicinity of Varanasi for wheat crop health status. No rust
was observed in the area. Even the TPN planted at the farmer field did not show presence of any wheat rust. Foliar blight was present in some fields on the lower leaves.

West Bengal: Dr. Satyajit Hembram, Plant Pathologist, RRS, UBKV, Pundibari, Coochbehar conducted survey in Coochbehar area and reported leaf blight incidence in some fields.

State wise status for Stripe Rust Incidence in wheat crop as on 25.02.2016 (received from DWD, Ghaziabad) is given below:

Haryana: On 18.02.2016, State Department of Agriculture reported incidence of stripe rust (about 440 acres) in Yamunanagar, Kurukshetra, Ambala, Panchkula and Karnal districts of Haryana state mostly in wheat varieties HD 2967, HD 3059, HD-2851 and WH 1105. Out of 440 acres of wheat crop, incidence of stripe rust (315.5 acre wheat crop) was reported in Babain, Sahabad, Ladwa and Thanesar blocks/villages in Kurukshetra District on 17th Feb., 2016.
Punjab: The incidence of stripe rust was reported in small patches in sub- mountainous areas like Kapurthala, Gurdaspur, Hoshiarpur, Ropar and SBS Nagar etc.
Jammu: Total area 2555 ha was infected by the stripe rust incidence in the Jammu, Kathua and Sambha districts of Jammu division of J & K state as on 20th February, 2016 as reported by the State Deptt. Of Agriculture.
Himachal Pradesh: The incidence of stripe rust was reported in small patches in Hamirpur district (Infected area 2.84 ha) district of HP.
Uttarakhand: The incidence of stripe rust was reported in small patches in the districts of Nainital and U.S. Nagar of Uttarakhand state (about 30 ha).

Strategy Meetings: Strategy meeting for managing stripe rust and Karnal bunt was organized at IIWBR, Karnal by ICAR-IIWBR in collaboration with DAC, G. O. I. on October 29, 2015. Meeting on formulating strategy for Karnal bunt management for co-operators of AICW&BIP was organized at IIWBR, Karnal on January 4, 2016.

Advisory for stripe rust management for northern states (Punjab, Haryana, Western UP, Uttarakhand, HP, J & K)

Stripe rust advisory is again circulated:

Keeping in view the favorable temperature / humidity for stripe rust development, if farmers observe stripe rust in their wheat fields, one spray of Propiconazole 25EC (Tilt 25 EC) @ 0.1 per cent be given at the foci of infection to avoid its further spread. One ml of chemical should be mixed in one litre water and thus 200 ml of fungicide mixed with 200 L of water should be sprayed in one acre wheat crop. If need, farmers are advised to repeat the spray. Farmers should spray the crop when weather is clear i. e. no rain, no fog / dew etc.

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