**BUREAU OF INDIAN STANDARDS**

*APPROVED* **MINUTES**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name of the Committee** | **No. of Meeting** | **Date** | **Time** | **Venue** |
| Agriculture and Food Processing Equipment Sectional Committee, FAD 20 | Seventeenth | **29 November 2021****(Monday)** | **1100 h** | Online (Through Webex) |

|  |  |
| --- | --- |
| **CHAIRMAN:** **Dr. K Alagusundaram**Ex-DDG(Engg.), ICAR, New Delhi | **MEMBER SECRETARY:** **Pawan Kumar**Scientist-C Food & Agriculture Department,Bureau of Indian Standards, New Delhi |

**ATTENDANCE SHEET –** Please see **Annex A (Page 35)**

**ITEM 0 GENERAL**

* 1. **Welcome**

Smt. Suneeti Toteja, Scientist - E & Head, Food and Agriculture Department welcomed the Chairman and members of FAD 20 to the 17th meeting of the committee. Smt. Toteja gave a brief background on the important agenda relating to development of standards on the equipment used to manufacture Fortified Rice Kernel and Fortified Rice based on the request received from Department of Food and Public Distribution, Ministry of Consumer Affairs, Food and Public Distribution. She appreciated the work done by FAD 20/Panel 14 under the convenorship of Prof. H. N. Mishra in a very short period to develop draft standards on the subject.

* 1. **Opening Remarks by the Chairman**

Dr. K Alagusundaram, Ex-DDG (Engineering), Indian Council of Agricultural Research, New Delhi and Chairman, Agriculture and Food Processing Equipments Sectional Committee, FAD 20 in his opening remarks extended a warm welcome to the members of the Committee to its 17th meeting and urged the members for fruitful and amicable discussions on the various issues raised in the agenda. He highlighted the importance and scope of Agriculture and Food Processing Equipments and requested the committee members to explore new subjects to develop standards. Besides, he also emphasized upon the expert members to contribute actively in this National endeavor and attend to the requested tasks promptly within the listed time frame.

**ITEM 1 CONFIRMATION OF THE MINUTES OF THE SIXTEENTH MEETING**

**1.1** The Committee confirmed the Minutes of the 16th meeting of Agriculture and Food Processing Sectional Committee, FAD 20 held on 03th June 2021, as circulated vide email dated 07th July 2021.

**ITEM 2 SCOPE, ACTIVITIES & COMPOSITION OF THE SECTIONAL COMMITTEE**

**2.1 SCOPE & ACTIVITIES OF THE COMMITTEE**

**2.1.1** The Committee noted the scope of FAD 20 as given in **2.1.1** of agenda.

**2.1.2** The committee considered the request of Oils and Oilseeds Sectional Committee, FAD 13 for transferring the following Indian Standards related to oil milling from FAD 20 to FAD 13 and agreed-in-principle to the proposal subject to availability of relevant expertise with FAD 13:

1. IS 5223 : 1993 Oilseeds milling machinery - Oil expellers - Test code (first revision)
2. IS 5224 : 1993 Oilseeds milling machinery - Oil expellers single barrel - Specification (second revision)
3. IS 13794 : 1993 Oilseeds milling machinery - Power ghanies portable - Specification.

**2.2 COMPOSITION OF THE SECTIONAL COMMITTEE**

**2.2.1** The committee noted the updated composition of FAD 20 as given in **2.2.1** of agenda.

**2.2.2** The committee noted the information as given in **2.2.2** of agenda regarding pending nominations from CFTRI, Mysore and Dr Panjabrao Deshmukh Krishi Vidyapeeth, Akola and requested the secretariat to send a reminder letter to the head of these organizations seeking nominations on FAD 20.

**2.2.3** The committee after due deliberation decided that following organizations may be co-opted for better stakeholder representation and expertise:

1. ICAR-Central Institute for Women in Agriculture, Bhubaneswar
2. NER-Farm Machinery Training and Testing Institute, Chiralli
3. Punjab Agricultural University, Ludhiana
4. Mahatma Phule Krishi Vidyapeeth, Rahuri.

**ITEM 3 ACTION ARISING FROM THE MINUTES OF THE SIXTEENTH MEETING**

| **S. No.** | **Ref. Clause of Minutes of 16th meeting of FAD 20 & Decision of the Committee** | **Action taken/Status** | **Decision of the Committee** |
| --- | --- | --- | --- |
|  | **ITEM 3, S. No. 2, ITEM 2.2, S. No. 4 and 5****Revision of Indian Standard on Manually - Operated Chaff Cutter (IS 7898: 2001) and Power - Operated Chaff Cutter - Safety Requirements (First Revision of IS 15542)** **Background**: Based on the inputs received from Dr. Adarsh Kumar, IARI, the revised draft on IS 7898 and IS 15542 was sent for wide circulation as FAD 20 (14140) C and FAD 20 (14138) C. Last date for providing comments on these documents was 24th June 2019.**In the 16th meeting**The Committee was apprised by BIS secretariat about the work done for revision of these two standards:1. These documents FAD 20 (14138) and FAD 20 (14140) were generated in the year 2018. In the 15th meeting of FAD 20 held on 05th June 2020, the Committee after due deliberation decided that these standards will be in two part, first one feeding chute type Chaff cutter (Including both manual and power operated) and second one Conveyer Type Chaff cutter.
2. The conveyer type chaff cutter is heavy duty and used by Industry. Inputs regarding the same can be sought from the Manufacturers.

In view of above, the Committee recommended that the revision of standards on Chaff cutter is pending for long time and due to Covid pandemic it is not possible to visit the industry in near future. So Committee asked Dr. R Visvanathan and Dr. Indramani to provide P - draft on the two standards as recommended by them, i.e. Conveyor type and Chute Type Chaff cutters.**Decision of the committee:**The committee decided to write to Dr. K. N. Agrawal, CIAE, Bhopal and Dr. Surendra Singh, AMMA - India to provide the wide circulation draft document on Chute type chaff cutter to both the experts and will be sent for wide circulation for 60 days. | The document prepared by BIS Secretariat was circulated to Dr. Surendra Singh and Dr. K N Agrawal for their inputs. Dr. Singh had send his inputs and the revised draft for feeding chute type chaff cutter. The same was placed at **Annex-I** of Agenda. | The Committee after due deliberation decided to circulate the document received as P-draft for 1 month. Further the Committee requested Dr. Surendra Singh to provide draft on the Conveyor type Chaff Cutter within 30 days. |
|  | **ITEM 3, S. No. 4****Revision of Indian Standards on Oil expellers** 1. IS 4596: 1968 - Glossary of Terms Relating to Oil Expellers
2. IS 5223: 1993 - Oilseeds Milling Machinery - Oil Expellers - Test Code
3. IS 5224: 1993 - Oilseeds Milling Machinery - Oil Expellers Single Barrel

The work for revision of the above standards was assigned to the following experts in the 14th meeting of FAD 20:1. Dr. R. Visvanathan, Professor, TNAU, Convener
2. Dr. S. D. Deshpande, Member
3. Dr. Rakesh Nigam,
4. Dr. Sanjeev Tyagi, CIPHET, Ludihana, Member
5. Sh. Palwinder Singh, Guru Teg Engineering College, member
6. Representative from HBTI, Kanpur.

In the last meeting, it was decided that if no comments were received by 06th June 2021 on the draft IS 4596, IS 5223 and IS 5224 received from Dr. R. Visvanathan then these will be sent for wide circulation. | *To be discussed in the next meeting* | The committee directed the BIS Secretariat to prepare the draft revision of IS 4596, IS 5223 and IS 5224 based on the inputs received from Dr. R. Visvanathan into wide circulation for 30 days for comments. |
|  | **ITEM 3, S. No. 5****Revision of Indian Standard on Symbols and Flow Diagram for Rice Milling (IS 11834: 1986) and Agricultural Produce Milling Machinery - Mini Rice Mill (IS 12792: 1989)****In the 15th meeting of FAD 20,****For revision of IS 11834,** the Committee deliberated on the inputs received and asked Dr. S Bhuvna, Indian Institute of Food Processing Technology, Thanjavur to send inputs for revision of this standard to Dr. Visvanathan. Dr. Visvanathan will provide the wide circulation draft which after approval from Chairman, FAD 20 will be sent for wide circulation.**For revision of IS 12792,** the committee deliberated and decided that inputs received from Dr. Kalbande will be sent to Dr. Pitam Chandra and Dr. Chandra after examining the same will provide wide circulation draft. The same will be sent for wide circulation after approval from Chairman, FAD 20. The Committee further asked representatives of M/s Jindal Stainless Corporate Management Services Pvt. Ltd. To provide inputs on the latest practice in materials for IS 11834 and IS 12792. **In the 16th meeting**The committee decided that if no comments were received by 06th June 2021 for the draft IS 12792 and IS 11834 received from Dr. R. Visvanathan then these will be sent for wide circulation. | *To be discussed in the next meeting* | The Committee advised that the revision of these standard to be expedited as per the decision taken in the previous meeting. |
|  | **ITEM 3, S. No. 6****Revision of Indian Standards on Seed processing plant** 1. IS 5718: 2000 - Agricultural Produce Processing Equipment - Seed Cleaners - Test Code
2. IS 12576: 1989 - Seed Processing Machinery - Indented Cylinder Grader - Test Code
3. IS 14460: 1997 - Seed Processing Equipment - Gravity Separator

**In the 14th meeting of FAD 20**, Dr. Kalbande informed the Committee that he needs some more time to review the standards. After deliberation the Committee decided to constitute the following panel for revision of these Indian Standards: 1. Dr. Indra Mani Mishra, IARI, Convener
2. Dr. Vinod Kalbande, Member
3. Dr. P. A. Borkar, Member

The draft when received will be sent for wide circulation for 60 days with the approval of Chairman, FAD 20.**In the 15th meeting of FAD 20**, The Committee advised Dr. Vinod Kalbande to provide revised drafts of these standards within 60 days for revision of these Indian Standards. These drafts will be sent to Dr. Ganpathy and Dr. Jix Antony for their inputs. They will provide their inputs. These inputs will be sent to Dr. Pitam Chandra. Dr. Chandra will provide wide circulation draft and the same with the approval of Chairman, FAD 20 will be sent for wide circulation. **In the 16th meeting**In the last meeting Dr. Vinod Kalbande provided inputs which was for revision of IS 14460. For other standards i.e. IS 5718 and IS 12756 no inputs were offered.The Committee after due deliberation decided to form a new panel comprising of following experts:1. Dr. R. Vishwanathan, TNAU, Convenor
2. Dr. S. D. Deshpande, CIAE, Bhopal, Member
3. Dr. Vinod Kalbande, IIPPL, Ambala, Member

Further, the committee advised the panel to provide the P-draft for IS 5718 and IS 12575 within 2 months which will be put for circulation as P-draft for 1 month.Also, for IS 14469, the committee decided that inputs received from Dr. Kalbande will be incorporated in the draft and circulated as P-draft for 1 month. | *To be discussed in the next meeting* | The Committee advised that the revision of these standard to be expedited as per the decision taken in the previous meeting. |
|  | **ITEM 3, S. No. 7****Draft Indian Standard – Carrot Washer** **Background** Chairman, FAD 20 advised Sh. Jagdish Singh, OSAW Agro Industries, Ludhiana to provide inputs within 30 days. After receipt of comments the same would be circulated among the Committee members for inputs/suggestions for a period of 30 days. Later the comments received from the members will be incorporated in the P-draft and the same will be circulated as Wide circulation draft for 30 days after obtaining permission of Chairman, FAD 20. **In the 14th meeting of FAD 20,** The Committee after due deliberation decided that Dr. M K Garg and Sh. Naveen, M/s OSAW, Ambala will prepare the P-draft and provide the same to BIS within 1 month. After receipt the same will be circulated as P- draft for 30 days. **In the 15th meeting of FAD 20,** The Committee after due deliberation decided that Dr. Vinod Kalbande and Dr. S. Ganpathy will provide the P - draft on Carrot Washer within 30 days. The draft when received will be circulated among the members for comments for 30 days. If no comments are received during this period the same will be sent for wide circulation for 30 days with the approval of Chairman, FAD 20. **In the 16th meeting**In the previous meeting, a draft which was received from Dr. M. K. Garg on Test Method for Carrot Washer.After deliberation the committee decided to constitute the following panel which will provide the P-draft within 30 days. The composition of the panel is as follows:1. Dr. Ravindra Naik, CIAE, Coimbatore, Convenor
2. Dr. A. Caroline Rathina, ICAR, Bangaluru
3. Dr. Ravi Gupta, HAU.
 |  *To be discussed in the next meeting* | The committee after due deliberation on the draft tabled during the meeting which received from Dr. Ravindra Naik decided that the draft will be circulated as P-draft for 1 month. |
|  | **ITEM 3, S. No. 8****Draft Indian Standard – Maize Sheller** **In the 15th meeting of FAD 20,** Dr. R Visvanathan informed the Committee that the P-draft will be provided by the panel within 60 days. The Committee decided that the draft when received will be circulated as P - draft among members for 30 days. If no comments are received during this period the same will be sent for wide circulation for 30 days with the approval of Chairman, FAD 20. **In the 16th meeting**In the last meeting, Dr. R. Viswanathan provided draft on Maize Sheller then committee after deliberation decided that if no comments received by 06th June 2021 then draft will be sent for wide circulation.Also, the committee decided that the revised draft on Husk Sheller for Maize received from Dr. R. Viswanathan will be sent as P-draft for 30 days. | *To be discussed in the next meeting* | The Committee advised that the formulation of these standard to be expedited as per the decision taken in the previous meeting. |
|  | **ITEM 3, S. No. 9, ITEM 2.2, S. No. 3****Draft Indian Standard – Single Screw Extruder** **Background:** **In the 15th meeting of FAD 20,**Committee after due deliberation decided that the draft available on Single screw extruder along with inputs of Dr. Bala will be sent to Dr. Nachiket Kotwaliwale, CIAE, Bhopal. Dr. Nachiket will provide P - draft within 30 days. The draft when received will be circulated as P-draft among members for 30 days. If no comments are received during this period the same will be sent for wide circulation for 30 days with the approval of Chairman, FAD 20. **In the 16th meeting**In the previous meeting the document FAD 20 (11352) - Single Screw Food Extruder - Specification (New) was discussed.This document was generated in the year 2017. In the 15th meeting of FAD 20 held on 05th June 2020, the Committee after due deliberation decided that the draft available on Single screw extruder along with inputs of Dr. Bala will be sent to Dr. Nachiket Kotwaliwale, CIAE, Bhopal.Dr. Nachiket provided the inputs on P-draft on Dec 2020. However, on examination of these inputs /draft standard, it is observed that the document is still incomplete and needs further deliberation of the committee.With the approval of Chairman, FAD 20, this document was dropped from the PoW and it will be taken a fresh once the draft standard is available for circulation, a new document number will be allotted to the project. The committee further after due deliberation decided to write Dr. Nachiket to nominate expert for providing input within 30 days which will be circulated as P-draft for 30 days. | *To be discussed in the next meeting* | The Committee advised that the formulation of the standard to be expedited as per the decision taken in the previous meeting. |
|  | **ITEM 3, S. No. 10****Draft Indian Standard – Mini Pulses Mill** **In the 14th meeting of FAD 20,** The Committee was informed by Dr. P. A. Borkar that draft standard was lacking some inputs. The same will be complied within 30 days and after that the P - draft will be sent to BIS Secretariat. After receipt of the same, it will be circulated among the committee members for 30 days. If no comments are received the same will be sent for wide circulation for 60 days. **In the 15th meeting of FAD 20,** The Committee after due deliberation decided that the draft received from Dr. Borkar will be sent to members as P - draft for 30 days. If no comments are received during this period the same will be sent for wide circulation for 30 days with the approval of Chairman, FAD 20. **In the 16th meeting**In the last meeting, the committee decided to accept the comment received for Mini Pulse Mill which needs to be incorporated in the P-draft and will be sent for wide circulation for 60 days. | *To be discussed in the next meeting* | The Committee advised that the formulation of the standard to be expedited as per the decision taken in the previous meeting. |
|  | **ITEM 3, S. No. 11****Detail study of CEN standards for taking it up as new subject for standard formulation** **Background:** Dr. Senthil Kumaran informed the Committee that he will need more time to study the European Standard on Food Processing Machinery - Vegetable Cutting Machine - Safety and Hygienic requirements. The Committee after due deliberation decided that Dr. Senthil Kumaran will provide inputs within 60 days. For European standards on Smokehouse and Dough mixers, the Committee advised that inputs of Dr. G. Meenakshi, PHT Centre, TNAU may be obtained. After receipt, the same may be communicated to Dr. Senthil Kumaran, IIHR and Dr. R. Visvanathan, TNAU for preparing P - draft within a time period of 30 days. The P - draft on receipt will be sent to Committee members for their comments/inputs for a time period of 30 days. **In the 15th meeting of FAD 20,**The Committee after due deliberation accepted the recommendations of Dr. R. Visvanathan on document FAD 20 (15457) P. The Committee decided that the updated document will be sent for wide circulation for 30 days. If no comments are received during this period the same with the approval of Chairman, FAD 20 will be sent for Publication.**In the 16th meeting**The committee after due deliberation decide to accept the comments received from Dr. Viswanathan on Vegetable Cutter Machine which will be sent for publication. | The finalized document FAD 20 (15457) after incorporating the comments received from Dr. Vishwanathan has been sent for publication. | Committee noted the information |
|  | **ITEM 3, S. No. 13****Revision of Indian Standard of SURFACE COVERED CULTIVATION – PLASTICS MULCHING LAYING MACHINE – FUNCTIONAL REQUIREMENTS (IS 15830: 2009)** **In the 14th meeting of FAD 20,** The Committee after due deliberation decided to allocate the work of revision of this Indian standard by following experts: 1. Dr. P. K. Sahoo, Principal Scientist, IARI, Convener
2. Dr. R. K. Singh, Director, CIPHET
3. Dr. Senthil Kumaran, IIHR

**In the 15th meeting of FAD 20,** The Committee after due deliberation decided that the inputs received from Dr. Senthil Kumaran will be sent to Dr. Pitam Chandra. Dr. Chandra will provide the wide circulation draft. The draft when received will be sent for wide circulation for 30 days. If no comments are received during this period the same will be sent for Publication with the approval of Chairman, FAD 20. **In the 16th meeting**In the previous meeting, it was decided as no progress was made on the draft, the committee decided to send to experts for their inputs for revision:1. Dr. Pitam Chandra, ICAR, Bhopal
2. Dr. R K Singh, PC, PET, CIPHET

Dr. Pitam Chandra will provide the wide circulation draft of the standard within 30 days which will be sent for wide circulation for 60 days once received. | This standard has been recommended for transfer to FAD 22. | The Committee was apprised by the BIS Secretariat that as per the decision taken in 15th meeting of FAD 20 this standard has been transferred to FAD 22. |
|  | **ITEM 3, S. No. 14****Revision of Indian Standard on Grader** - **Citrus - Size Based (IS 15831: 2009)** **Background:** **In the 13th meeting of FAD 20,** The Committee after due deliberation decided to reconstitute the panel for revision of IS 15831. The composition of the panel is as follows: 1. Dr. S. D. Deshpande, Convener
2. Dr. P. A. Borkar, PDKV, Member
3. Sh. Jagdish Singh, OSAW, Member

A panel meeting was held on 18th July 2018, it was decided that Certain inputs regarding flow diagram and definitions were to be provided by Sh. Jagdish Singh. **In the 14th meeting of FAD 20,** It was informed by Dr. S D Deshpande that draft standard will be complied within 60 days and after that it will be sent to BIS Secretariat. After receipt of the same, it will be sent for wide circulation for 60 days. **In the 15th meeting of FAD 20,** The Committee after due deliberation decided that the draft received from Dr. S. D. Deshpande will be sent for wide circulation for 30 days. If no comments are received during this period the same will be sent for Publication with the approval of Chairman, FAD 20. **In the 16th meeting**The committee decided that if no comments are received for FAD 20 (17385) C till the last date for providing comments. Then this document will be sent for publication with the approval of Chairman, FAD 20. | No comment was received till the last date for providing comment. The same may be approved for publication. | The Committee after due deliberation decided to send the document FAD 20 (17385) for publication. |
|  | **ITEM 3, S. No. 15, ITEM 2.2 S. No. 2****Draft Indian Standard – Cotton Pre-Cleaner Background:** **In the 13th meeting of FAD 20,** The Committee decided to send communication again to Dr. V G Arude, CIRCOT for his inputs. The inputs when received will be incorporated in the Doc: FAD 20 (11351) and then the same will be sent for wide circulation for a period of 60 days. The Chairman advised Dr. Dhingra to follow up with Dr. Arude. **In the 14th meeting of FAD 20** The Chairman advised the BIS Secretariat to send this draft to Ms. Anamika Thakur. She will send this draft to Director, CIRCOT through the office of Chairman for inputs. **In the 15th meeting of FAD 20,**The Chairman, FAD 20 asked Dr. Arude to submit the wide circulation draft within 30 days. The draft when received will be sent for wide circulation for 30 days. If no comments are received during this period the same will be sent for Publication with the approval of Chairman, FAD 20.**In the 16th meeting**In the last meeting FAD 20 (11351) - Test Code for Seed Cotton Cylinder Cleaners (New) was discussed.In the 12th meeting of FAD 20 held on 23rd Feb 2017, the Committee decided that the document received from Dr. V. G. Arude will be sent for wide circulation. However, the draft standard was found to be incomplete and Dr. Arude was requested to revise the draft. The modification suggested were sent to Dr. Arude, but no inputs have been received from him. As the modified draft was not received. With the approval of Chairman, FAD 20, this document was dropped from the PoW and it will be taken a fresh once the draft standard is available for circulation, a new document number will be allotted to the project.The Committee after due deliberation decided to write to Director, CIRCOT for obtaining the draft standard within 30 days which will be circulated as P-draft for 30 days once received. | Communication was sent to Director, CIRCOT. The inputs has been received Dr. Arude. The same is placed at **Annex-II**. | The Committee after due deliberation decided that the document received from Dr. Arude will be circulated as P-draft for 1 month. |
|  | **ITEM 3, S. No. 16****Review of Standards on Paddy and Rice Processing, Paddy Cleaning** List of the standards are as follows: 1. IS 8427: 1989 - Agricultural Produce Milling Machinery - Rubber Roll for Paddy Dehusker
2. IS 8440: 1977 - Test code for paddy cleaners
3. IS 9049: 1989 - Agricultural Produce Milling Machinery - Paddy Dehusker, Rubber Type - Test Code
4. IS 9555: 1999 - Rice Polisher
5. IS 10048: 1999 - Rice Grader
6. IS 10507: 1998 - Paddy Separator
7. IS 11787: 1986 - Paddy Dehusker, Rubber Roll Type
8. IS 12064: 1987 - Code of Practice for Paddy Parboiling
9. IS 12396: 1988 - Paddy Cleaner
10. IS 12411: 1988 - Paddy Dehusker, Centrifugal Type

**In the 14th meeting of FAD 20,** The Committee after due deliberation decided to allocate the work of revision of these Indian standard by following experts: 1. Dr. R. Visvanathan, Professor, TNAU, Convener
2. Dr. N. Venkatachalpathy, IICPT, Member

The revised draft on this Indian Standards when received from the panel will be sent for wide circulation for 60 days. **In the 15th meeting of FAD 20,** The Committee after due deliberation decided to constitute a panel for review of standards on Paddy and Rice processing and cleaning. The Composition of the panel is as follows: 1. Dr. Pitam Chandra, ICAR, Bhopal, Convenor
2. Dr. Nachiket Kotaliwale, CIAE, Bhopal, Member
3. Dr. S. Bhuvna, Indian Institute of Food Processing Technology, Thanjavur
4. Representative from M/s Jindal Stainless Corporate Management Services Pvt. Ltd.

The Committee advised the panel to provide the wide circulation draft within 60 days. The drafts when received will be sent for wide circulation for 30 days. If no comments are received during this period the same will be sent for Publication with the approval of Chairman, FAD 20.**In the 16th meeting**The committee after deliberation decided to write to the panel again for providing the wide circulation draft for IS 8427, IS 8440, IS 10048 and IS 11787. The composition of the panel is as follows:1. Dr. Pitam Chandra, Convenor
2. Dr. Nachiket Kotaliwale, CIAE, Bhopal, Member
3. Dr. S. Bhuvna, Indian Institute of Food Processing Technology, Thanjavur
4. Representative from M/s Jindal Stainless Corporate Management Services Pvt. Ltd

Also, BIS secretariat will provide the inputs received on these standards to the panel. The draft received from the panel will be sent for wide circulation for 60 days with the approval of Chairman, FAD 20. | *To be discussed in the next meeting* | The Committee advised that the revision of these standard to be expedited as per the decision taken in the previous meeting. |
|  | **ITEM 3, S. No. 17****Review of Standards on Sugarcane** IS 15561: 2005 Sugarcane Crushers - Safety Requirements **In the 14th meeting of FAD 20,** The Committee after due deliberation decided to allocate the work of revision of these Indian standards by following experts: 1. Dr. R Visvanathan, Professor, TNAU, Convener
2. Dr. S. I. Anwar, IISR, Lucknow, Member

The revised draft on this Indian Standards when received from the panel will be sent for wide circulation for 60 days.**In the 14th meeting of FAD 20,** Dr. Visvanathan informed the Committee that the wide circulation draft is under preparation and will be provided to BIS secretariat within 30 days. The drafts when received will be sent for wide circulation for 30 days. If no comments are received during this period the same will be sent for Publication with the approval of Chairman, FAD 20.**In the 16th meeting**The committee after deliberation decided that if no comments are received for FAD 20 (17386) from Dr. R. Viswanathan by the last date of providing comments then the same will be sent for publication with the approval of Chairman, FAD 20. | No comment was received till the last date for providing comment. The same may be approved for publication. The document is placed at **Annex-III**. | The Committee after due deliberation decided to send the document FAD 20 (17386) for publication. |
|  | **ITEM 3, S. No. 18****Review of IS 14603: 1998 Potato Grader** **Background:** **In the 13th meeting of FAD 20,** Committee decided to again send the communication to the panel for revised draft of IS 14603, which when received will be sent for wide circulation with the approval of Chairman, FAD 20 for 60 days. Chairman advised Dr. Dhingra to follow up with Dr. Sunil Gulati, CPRI, Shimla for expediting the revision of IS 14603: 1998. Dr. Sunil Gulati had sent the revised draft, the same has been circulated among the FAD 20 members. **In the 14th meeting of FAD 20,** Committee decided to send this draft to Dr. M K Garg for providing inputs within 30 days. After receipt of the same the draft will be sent for wide circulation for 60 days. **In the 15th meeting of FAD 20,**The Committee after due deliberation decided to accept the comments received from Dr. R. Visvanathan and asked BIS secretariat to incorporate these comments in the revised draft and sent the modified document for wide circulation for 30 days. If no comments are received during this period the same will be sent for Publication with the approval of Chairman, FAD 20.**In the 16th meeting**In the last meeting, it was discussed that while preparing the wide circulation draft by BIS secretariat, it was observed that certain inputs must be presented in the document as per the comments of Dr. R. Visvanathan which are as follows:1. Size of hot box (volume) and the mass of tubers to be placed.
2. Cutting damage and Bruising damage
3. Determination of energy consumption

The committee after due deliberation decided that inputs received from Dr. R. Viswanathan will be sent to Dr. S. K. Tyagi, Dr. Pitam Chandra, PHET, CIPHET, Ludhiana to provide the wide circulation draft within 30 days, which once received will be sent for wide circulation for 60 days. | *To be discussed in the next meeting* | The Committee advised that the revision of the standard to be expedited as per the decision taken in the previous meeting. |
|  | **ITEM 3, S. No. 19****Review of Standards on Cotton** List of the standards are as follows: 1. IS 15855: 2010 Cotton Seed Delinting Machinery - Surge Bin Machine
2. IS 15856: 2010 Cotton Seed Delinting Machinery-Pre-Heating Machine-Specification

**In the 14th meeting of FAD 20,** The Chairman has asked the BIS Secretariat to send these standards to Ms. Anamika Thakur. She will send this draft to Director, CIRCOT through the office of Chairman for inputs. **In the 15th meeting of FAD 20,** The Committee after due deliberation decided that Dr. Vinod Kalbande will provide inputs for revision of IS 15855 and IS 15866. After receipt of these inputs the same will be sent to Director, CIRCOT and wide circulation draft will be prepared by CIRCOT in the guidance of Director, CIRCOT.The drafts when received from Director, CIRCOT will be sent for wide circulation for 30 days. If no comments are received during this period the same will be sent for Publication with the approval of Chairman, FAD 20.**In the 16th meeting**In the last meeting, it was noted no progress has been made therefore the committee decided to write to Director, CIRCOT for obtaining the draft for revision of IS 15855 and IS 15856 which once received will be sent for wide circulation for 60 days. | Communication was sent to Director, CIRCOT. Inputs are awaited. | The committee after due deliberation decided to request Dr. V G Arude, CIRCOT to provide the revised draft. The draft once received will be circulated as P-draft for 1 month. |
|  | **ITEM 3, S. No. 20****Review of Standards on Oil Milling** List of the standards are as follows: 1. IS 12047: 1987 Oil Seed Cookers/Kettles, Horizontal Type
2. IS 13794:1993 Oilseeds Milling Machinery - Power Ghanies Portable

**In the 14th meeting of FAD 20,** The Committee after due deliberation decided to allocate the work of revision of Indian standards on Oil expellers to following experts: 1. Dr. R. Visvanathan, Professor, TNAU, Convener
2. Dr. S. K. Giri, CIAE, Bhopal, Member
3. Dr. Rakesh Nigam,
4. Dr. Sanjeev Tyagi, CIPHET, Ludihana, Member

The revised draft on these Indian Standards when received from the panel will be sent for wide circulation for 60 days. **In the 15th meeting of FAD 20,** The Committee after due deliberation decided to constitute a panel for review of standards on oil milling. The Composition of the panel is as follows: 1. Dr. R. Visvanathan, Convenor
2. Dr. R. K. Vishwakarma, CIPHET, Ludhiana, Member
3. Dr. S. K. Giri, CIAE, Bhopal, Member

The Committee advised the panel to provide the wide circulation draft within 60 days. The drafts when received will be sent for wide circulation for 30 days. If no comments are received during this period the same will be sent for Publication with the approval of Chairman, FAD 20.**In the 16th meeting**The committee after due deliberation decided to send the document IS 12047 and IS 13794 received from Dr. Viswanathan for wide circulation for 60 days. | For IS 13794: 1993, please refer **2.1.2**.Inputs are awaited for IS 12047. | For IS 13794, please refer decision at 2.1.2.For IS 12047, The Committee advised that the revision of the standard to be expedited as per the decision taken in the previous meeting. |
|  | **ITEM 3, S. No. 21****Review of Standards on Agriculture Produce Milling Machineries** List of the standards are as follows: 1. IS 10520: 1989 - Agricultural Produce Milling Machinery - Emery Stones for Burr Flour Mills
2. IS 10892: 1984 - Recommendations for aperture size of sieves for seed cleaners
3. IS 11041: 1984 - Air-Screen Seed Cleaner
4. IS 12833: 1989 - Agricultural Produce Milling Machinery - Roller Flour Mills - Flow Diagram
5. IS 13793: 1993 - Agricultural produce milling machinery - Milling of pulses - Flow Diagram

**In the 14th meeting of FAD 20,** The Committee after due deliberation decided to constitute a panel for revision of Standards on milling machinery. The composition of the panel is as follows: 1. Dr. Prasoon Verma, IIPR Kanpur, Convener
2. Dr. Vinod H Kalbande, M/s Indosaw, Member
3. Dr. S. K. Giri, CIAE, Bhopal, Member
4. Sh. Naveen Labava, M/s Agrosaw, Member

The Committee advised the panel to provide the revised draft documents within 60 days. These documents on receipt will be sent for wide circulation for 60 days with the approval of Chairman, FAD 20. **In the 15th meeting of FAD 20,** The Committee after due deliberation asked the panel under the Convenorship of Dr. Prasoon to again review these standards and provide inputs. The Committee was further of opinion that if the panel feels that the standards needs substantial modifications then it will be taken up for revision else only amendment will be taken up in the standard. Dr. Vinod Kalbande assured the Committee that he will provide inputs for revision of IS 11041. The drafts when received will be sent for wide circulation for 30 days. If no comments are received during this period the same will be sent for Publication with the approval of Chairman, FAD 20.**In the 16th meeting**In the previous meeting, it was observed that no panel meeting was held regarding the review on Agriculture Produce Milling Machineries.The Committee after deliberation decided to write to Dr. Sandeep Mann, Principal Scientist, CIPHET, Ludhiana with the inputs received from Dr. Prasoon for providing the wide circulation draft within 30 days which once received will be sent for wide circulation for 60 days. | *To be discussed in the next meeting* | The Committee advised that the revision of these standard to be expedited as per the decision taken in the previous meeting. |
|  | **Item 3, S. No. 22** **Revision of IS 8824 (Part 1): 1978 Specification for Electrical Moisture Meters Part 1 for Foodgrains** **In the 14th meeting of FAD 20,** It was informed by Dr. Kalbande that IR method is also to be included in the existing draft. The Committee decided that the draft received from Dr. Kalbande will be sent to Director, CIPHET for inputs regarding validation of Calibration of the Moisture meter. After receipt of inputs from CIPHET, this draft will be sent for wide circulation for 30 days. If no comments are received during wide circulation, the same will be sent for printing with the approval of Chairman, FAD 20. **In the 15th meeting of FAD 20,** The Committee after due deliberation decided that the draft received from Dr. Kalbande will be sent for wide circulation for 30 days. If no comments are received during this period the same will be sent for Publication with the approval of Chairman, FAD 20.**In the 16th meeting**The committee after due deliberation decided to form a panel and requested the panel for providing the wide circulation draft within 30 days. The composition of the pane is as follows:1. Dr. D. Shivagan, NPL, Convenor
2. Dr. Sandeep Maaan, CIPHET, Ludhina
3. Dr. Vinod Kalbande, IIPPL, Ambala, Member

The draft once received will be sent for wide circulation for 60 days. | Three panel meeting was held of the panel and after due deliberation wide circulation draft has been prepared and placed at **Annex-IV**.  | The Committee after due deliberation on the draft prepared by the panel decided as follows: 1. to delete ‘or as declared by the manufacturer depending on the commodity type. Readings have to be taken within shortest period of time on the same moisture meter and same type of commodity. Standard deviation of the readings is called as repeatability’ from clause 7 of the draft document.
2. After incorporating the above decision, the draft will be wide circulated for 1 month.
3. Communication to be sent to the following Institutes for seeking input on repeatability of test results
4. Director, NIFTEM,
5. Director, IIFPT
6. Director, CFTRI
7. Director, CIPHET
8. Grain Storage Research Institute, Hapur
 |
|  | **ITEM 5 New Work Item**1. **Seed Processing Terminology**
2. **Seeds Processing plant**
3. **Food serving utencils made from agriculture by-products**
4. **Spiral Grader**

**In the 15th meeting of FAD 20,**1. The Committee decided to circulate the draft received from Dr. Kalbande on Seed Processing Terminology Seeds Processing plants as P-draft for 30 days to the members for their inputs.
2. The Committee after due deliberation decided to constitute a panel for formulation of P - draft on Food serving utencils made from agriculture by-products. The Composition of the panel is as follows:
3. Dr. R Visvanathan, Convener
4. Dr. Vinod Kalbande, Member
5. Dr. Nachiket Kotaliwale, Member
6. Mr. Pawan Kumar, Member

The committee advised the panel to formulate P - draft within 60 days.1. The Committee asked Dr. Nachiket Kotaliwale to provide P - draft on Spiral Grader within 30 days.

**In the 16th meeting**In the last meeting, the committee after due deliberation decided that1. If no comments are received during P-draft circulation of FAD 20 (17388). Then same will be sent for wide circulation for 60 days.
2. The committee decided to write to Dr. P. Masilamani Dean Agricultural College and Research Institute, Tiruchirappalli, Tamil Nadu for providing P-draft on Seeds Processing Plants. The draft once received will be circulated as P-drafts for 30 days.
3. The committee decided to circulate the updated draft received from Dr. Viswanathan on Food Serving Utencils made by Agriculture by-products as p-draft for 30 days. If no comments are received by the last date for providing comments, then same will be sent for wide circulation.
4. The committee decided that draft received from Dr. Nachiket will be circulated as P - draft for 30 days. If no comments are received by the last date for providing comments, then same will be sent for wide circulation.
 | For Seed Processing Terminology,*To be discussed in the next meeting*For Seeds Processing plant, *To be discussed in the next meeting*For Food serving utencils made from agriculture by-products The draft prepared was circulated as P-draft on 22 July 2021. The updated draft was received from Dr. Viswanathan and comments on the same was received from Dr. Nachiket Kotwaliwale. The updated draft along with comment received was placed at **Annex-VIII** of agenda.For spiral grader*To be discussed in the next meeting* | The Committee after due deliberation decided that for1. Seed Processing Terminology
2. Seeds Processing plant
3. Spiral Grader

Work assigned as per the decision taken in the previous meeting to be expedited. **For Food serving utencils made from agriculture by-products,** The modified draft received from Dr. Nachiket Kotwaliwale will be sent for wide circulation for 30 days. |
|  | **ITEM 2.2, S. No. 1****FAD 20 (01839)****Mobile Agro Processing Units - Safety Requirements (New)**This project was taken up in the year 2007 during the 4th meeting of FAD 20. In the 5th meeting of FAD 20 held on 08 Feb 2008, a panel was constituted for resolving the comments received during wide circulation. The composition of the panel was as follows:i)         Dr. B.S. Bisht, ADG, ICAR, - Convenorii)        Dr. S.K. Nanda, CIPHET, Ludhianaiii)       Dr. S.D. Deshpande, CIAE, Bhopaliv)       Shri Hemant Kumar, VOICE However, as per records no inputs were received from the panel members. It is proposed that we may take up this subject afresh in the forthcoming meeting of FAD 20 and drop this document number for now. Once the draft standard is available for circulation, a new document number will be allotted to the project. **In the 16th meeting**The Committee after deliberation agreed to the proposal and decided to take up formulation of an Indian Standard on the subject afresh. It was decided to constitute a panel to develop a P-draft on the subject within 30 days. The composition of the panel is as follows:1. Dr. Pitam Chandra, Ex-Director, CIAE, Bhopal, Convenor
2. Dr. S. Bhuvna, Indian Institute of Food Processing Technology, Thanjavur
3. Dr. Vinod Kalbande, M/s Indosaw, Ambala
 | Panel meeting was held on 21 July 2021, the draft was discussed and further inputs were requested from the members. | The Committee advised the panel to expedite the formulation of standard. |
|  | **ITEM 2.2, S. No. 1****FAD 20 (02349)****Agricultural grains driers** - Determination of drying performance - Part 2 Additional procedures and Crop Specific requirements (New)(Identical adoption of ISO 11520-2:2001) (New)This standard is identical adoption of ISO 11520-2, this standard is valid till date. This document was finalized by FAD 20 in the 8th meeting held on 10th Feb 2012. However, no progress has been done for this document for so long.Thus, in view of above it is requested to kindly accord approval for sending this document for publication.**In the 16th meeting**The committee after deliberation decided to send the document for publication.  | The document FAD 20 (2349) is under publication. | Committee noted the information. |
|  | **ITEM 2.3, S. No. 2**FAD 20 (02348)Agricultural Grain Driers – Determination of drying Performance – Part 2 Additional Procedures and Crop Specific requirements (Adoption of ISO 11520-1:1997) (New)This standard is identical adoption of ISO 11520-1, this standard is valid till date. This document was finalized by FAD 20 in the 8th meeting held on 10th Feb 2012. However, no progress has been done for this document for so long.Thus, in view of above it is requested to kindly accord approval for sending this document for publication.**In the 16th meeting**The committee after deliberation decided to send the document for publication.  | The document FAD 20 (2349) is under publication. | Committee noted the information. |
|  | **ITEM 2.3, S. No. 3**FAD 20 (02347)Agricultural Machinery -Safety - Part 11- Pick up Balers (Adoption of ISO 4254-11:2010) (New)This standard is identical adoption of ISO 4254-11, this standard is valid till date with an amendment published in the year 2020 i.e. ISO 4254-11:2010/AMD 1:2020. This document was finalized by FAD 20 in the 8th meeting held on 10th Feb 2012. However, no progress has been done for this document for so long.Thus, in view of the amendment issued by ISO it is proposed that this document may be sent for wide circulation with amendment.**In the 16th meeting**The committee after deliberation agreed to the proposal and decided to send the document for wide circulation with amendment.  | *To be discussed in the next meeting* | The committee after due deliberation decided that the work assigned as per the decision taken in the previous meeting to be expedited.  |
|  | **ITEM 2.3, S. No. 4**FAD 20 (02344)Oil Expeller (low capacity single screw) – Specification (New)This standard is indigenous standard. This document was finalized by FAD 20 in the 8th meeting held on 10th Feb 2012. However, no progress has been done for this document for so long.Thus, in view of above it is requested to kindly accord approval for sending this document for publication.**In the 16th meeting**The committee after due deliberation decided to circulate this document to its members again for two days and if no negative comments are received by 06th June 2021 (Sunday) then this document will be sent for publication. | No comment was received by the last date for commenting i.e. 06 June 2021. The committee may approve the document for publication. The document is placed at **Annex-VII**. | The Committee after due deliberation decided to send this document for publication. |
|  | **ITEM 5, S. No 5.2**New standard proposal on Stainless Steel for Drier Unit, Parboiling System and Semi Parboiling Rice**In the 16th meeting,**The committee after due deliberation on three new work item proposals been received from M/s Jindal on the following subjects and decided to form a panel for discussion on these subjects:1. "Stainless Steel for Drier Unit".
2. "Stainless Steel for Parboiling System".
3. "Storage Tanks for Semi-Processed Rice".

The composition of the panel is as follows:1. Dr. Nachiket Kotwaliwale, Convenor
2. Dr. Pitam Chandra, ICAR, Bhopal
3. Dr. R Vishwanathan
4. Shri Promod, M/s SKF
5. Dr. Surendra Singh, AMMA-Indian
6. Representative from M/s Jindal Steel
7. Representative from Coventry Agro

The committee requested the panel to provide P-draft within 60 days. | The panel meeting was held on 10 Aug 2021, the panel decided1. To requested BIS secretariat for ISO documents if available on subject related to the draft received from Jindal Steels.
2. The Panel advised Jindal Steels to sponsor study on utility of stainless steel as material for the Drier Unit, Paraboiling Unit and Semi-processed rice mill.
3. iii. Further, panel requested ICAR-Central Institute of Post-Harvest Engineering & Technology (CIPHET) to give/provide their inputs on the formulation of NWIP of drafts.
 | The Committee after due deliberation advised the panel to expedite the work of formulation of standard on these subjects. |
|  | **ITEM 5, S. No 5.3****Food Grain ATM**In the 16th meeting, the Committee deliberated on the proposal received for formulation of Indian Standard on Food Grain ATM. The committee after due deliberation decided to constitute a panel for formulation of P-draft on this subject. The composition of the panel is as follows:1. Dr. K Alagusundaram, DDG (Engg), ICAR, Convenor
2. Dr. R Vishwanathan
3. Rep of World Food Program
4. Rep. of manufacturing units
5. Mr. Pawan Kumar, BIS
 | *To be discussed in the next meeting* | The Committee advised the panel to expedite the work assigned to it. |

**ITEM 4 INTERNATIONAL ACTIVITIES**

**4.1** The committee noted the information about the participation of Indian delegation in the 2nd meeting of ISO/TC 326 Machinery Intended to use with Foodstuff. The committee advised members to participate in International Standardization to present India’s view point at the International forum.

**ITEM 5 NEW WORK ITEM PROPOSAL**

* 1. **Development** **of Indian Standards on Equipment for Fortified Rice Kernels (FRK) and Fortified Rice**

**5.1.1** The Committee examined the following draft Indian Standards as circulated in Annex V and Annex VI, of the agenda along with the comments received from M/s JVS Foods as tabled in the meeting (Annex B).

1. Doc: FAD 20 (18051) Working Draft Standard - Equipment for Manufacture of Fortified Rice Kernel – Specification
2. Doc: FAD 20 (18052) Working Draft Standard - Equipment for Manufacture of Fortified Rice – Specification

Decision of the committee on the comments received is given in Annex B.

**5.1.2** The committee after due deliberation approved the draft standards for issuing into wide circulation for one month for comments.

Further, the committee requested FAD 20/Panel-14 to examine the comments that would be received on these draft standards during wide circulation period and give its recommendation to the committee so that these can be considered in the next meeting of FAD 20.

**5.1.3** BIS Secretariat requested the committee to consider including suitable test method to verify uniform blending of FRK in fortified rice. The committee agreed to the suggestion and requested Prof. H. N. Mishra to provide the test method which may be suitably incorporated in the draft standards on fortified rice after wide circulation.

**ITEM 6 ANY OTHER BUSINESS**

There being no other business, the meeting ended with the hearty vote of thanks to the chairperson and the members of the committee.

**ITEM 7 TIME AND PLACE FOR THE NEXT MEETING**

After discussion among committee members, it was decided to hold the next meeting of FAD 20 on 07 January 2021 at ICAR-Sugarcane Breeding Institute, Coimbatore.

**Annex A**

**ATTENDANCE FOR THE 17th MEETING OF AGRICULTURE AND FOOD PROCESSING SECTIONAL COMMITTEE FAD 20 HELD ON 29th NOVEMBER 2021**

|  |  |  |
| --- | --- | --- |
| **Sl. No.** | **Organization** | **Members** |
|  | Indian Council of Agricultural Research, New Delhi | Dr. K. Alagusundaram (Chairperson) |
|  | Agriculture Machinery Manufacturers Association, Pune | Dr. Surendra Singh |
|  | CSIR-Central Food Technological Research Institute, Mysore | Shri H. Umesh Hebbar |
|  | Indian Council of Agricultural Research, New Delhi | Dr. Kanchan K. Singh |
|  | ICAR-Central Institute of Agricultural Engineering, Bhopal | Dr. Ravindra Naik |
|  | ICAR-Indian Institute of Horticultural Research, Bengaluru | Dr. A. Carolina Rathina KumariDr. S. Bhuvaneswari |
|  | ICAR-Central Institute for Research on Cotton Technology, Mumbai | Dr. V. G. Arude |
|  | ICAR-Central Institute of Post-Harvest Engineering and Technology, Ludhiana | Dr. Sandeep MannDr. R. K. Vishwakarma |
|  | Indian Council of Agricultural Research, New Delhi | Dr. Kanchan K SinghDr. Panna Lal Singh |
|  | Indian Institute of Food Processing Technology, Thanjavur | Dr. S. Bhuvana |
|  | Indosaw Industrial Products Private Limited, Ambala Cantt. | Dr. Vinod H. Kalbande |
|  | National Committee on Plasticulture Applications in Horticulture | Shri Anand Zambre |
|  | Northern Region Farm Machinery Training and Testing Institute, Hisar | Shri G. R. Ambalkar |
|  | Tamil Nadu Agricultural University, Coimbatore | Dr. R. Visvanathan |
|  | Expert in Personal Capacity | Shri S. D. Deshpande |
|  | Food & Agriculture Department, BIS, New Delhi | Ms. Suneeti Toteja (Head) |
|  | Food & Agriculture Department, BIS, New Delhi | Shri Pawan Kumar(Member Secretary, FAD 20) |

**Annex B**

**Decision of committee on comments received from M/s JVS Foods on document FAD 20 (18501) WD EQUIPMENT FOR MANUFACTURE OF FORTIFIED RICE KERNEL – SPECIFICATION (working draft)**

|  |
| --- |
|  **Working of Draft Equipment used in production of Fortified Rice Kernel – Specification** |
| **Sl. No.** | **BIS Draft Standard**  | **JVS Foods Comments**  | **Decision of the Committee** |
|  | Fortified Rice Kernels: Rice shaped kernels containing vitamins and minerals through extrusion or whole rice kernels coated with vitamins and minerals.   | No doubt coating of Vitamin Minerals on rice was tried earlier for fortification of rice. Heavy losses were observed during home processing i.e. washing of the rice. Therefore, at this juncture focus only FRK produced through extrusion process.  | Not accepted.The definition of FRK is aligned with that given in IS 17782 : 2021 FORTIFIED RICE KERNELS-SPECIFICATION. |
|  | Performance requirements of the pulverizer should be as follows: 1. Particle average size shall be less than 150 µm (preferable below 100µm).

  | Fortified Rice Kernel in our opinion is a processed food product, 250-350-micron particle size after rice pulverization is good enough to produce a good quality FRK with smooth surface & texture with affordable cost of production & quality. 100-micron particle size is good to talk but in practical it is difficult to produce consistently & hygienically.  | Not accepted.The committee after due deliberation was of the view that particle size below 150 µm is required for producing good quality FRK. |
|  | Components of Mixer (Powder-Mixer): 1. W-shape trough /chamber equipped with suitable size of paddles/double-helical ribbons
2. Cover/lid provided with a food-grade gasket to avoid spillage of material.
3. Material discharge arrangement
4. Controlled water dosing unit
5. Controlled VMP dosing unit (leak-proof)
6. Controlled additives dosing unit (leak-proof)
7. Lump breaking arrangement

Types of mixing units: 1. Ribbon & Paddle Blenders
2. High Speed Mixer
3. Automatic dosing system

(each to be explained in the definition) Arrangement for water dozing used: 1. Automatic & Volumetric
2. Manual feeding
3. Manual & Volumetric
4. Automatic

(each to be explained in the definition) Arrangement for dozzing of Vitamin Mineral-Premix (VMP) * 1. Through Diluted Premix
	2. Manual feeding

3. Automatic (each to be explained in the definition) | Here we want to draw your attention towards: 1. Dry Mixing for mixing of rice powder & fortificants, Ribbon & Paddle Blenders are best suitable and giving good results depending upon time of mixing & size of mixer.

For only Dry blending half to two third volume of mixing capacity is used to get homogeneous mix. For Dry mixing auto dozing of Rice powder & Vitamin-Mineral premix is recommended. 1. Wet Mixing: This is an additional equipment apart from above dry blender to condition the rice powder (Rice flour + fortificants) before extrusion to get a smooth product and should have a high speed blending capacity with different blade arrangements along with water dozing system with PLC. The simple ribbon blenders, paddle blenders will not work.

High Speed Mixing is needed to avoid lump formation.1. At Wet Mixing also auto dozing or volumetric dozing is needed with Volumetric on line Measurement of water addition.

  | The Committee was not clear about the change suggested by the commentator and requested BIS secretariat to seek clarification from the commenter. |
|  | Components of Extruder: Barrel 1. Single or multi-unit with the provision of heating and cooling.
2. Equipped with temperature sensors at each zone.
3. Wear-resistant, suitable to sustain high pressure.

Screw 1. Single or multi screw element positioned on the shaft.
2. Properly designed to convey material from feed to die section.
3. Wear-resistant, suitable to sustain high pressure.

Die head 1. Suitably designed to hold die.
2. Provided with temperature and pressure sensor

Feeder 1. A twin-screw feeder with precise control
2. Suitably designed hopper to deliver wet material to screws.

Die and cutter 1. Specific for rice variety
2. Die opening should be such that while cutting kernels should not stick together.

Cutter speed should be adjustable with rated screw speed.  | As our learned panel members knows very well or known worldwide that Twin Shaft Extruders produce FRK with proper texture, color and homogeneity. Therefore, in our recommendation Single Shaft Extruders should not be kept in standards.  | The Committee deliberated on the comment and decided to seek information from the commenter in form of research data/literature to support the removal of single screw extruder in view of better quality production. The information to be provided by the commenter in the BIS commenting template. |

**Decision of committee on comments received from M/s JVS Foods on document FAD 20 (18502) WD EQUIPMENT FOR MANUFACTURE OF FORTIFIED RICE – SPECIFICATION (working draft)**

|  |
| --- |
| **Equipment used in production of Fortified Rice – Specification** |
| **Sl. No.** | **BIS DRAFT STANDRAD**  | **JVS Foods Comments**  | **Decision of the Committee** |
|  | Fortified Rice Kernels: Rice shaped kernels containing vitamins and minerals through extrusion or whole rice kernels coated with vitamins and minerals.   | No doubt coating of Vitamin Minerals on rice was tried earlier for fortification of rice. Heavy losses were observed during home processing i.e. washing of the rice. Therefore, at this juncture focus only FRK produced through extrusion process.  | The comment not accepted.This is standard definition and is already published in the IS 17782: 2021 FORTIFIED RICE KERNELS-SPECIFICATION. |
|  | Components of Blending Unit: 1) FRK and raw rice feeder  Screw, vibratory or belt  | Screw Conveying must be avoided in all type of operations in FRK conveying and blending to avoid the percentage of broken.  Elevators to elevate the material in blenders should have the plastic PVC Buckets instead of metal buckets, better to have Z-type bucket elevators moving slowly & precisely.    | Comments not clear.Secretariat to request commentator to provide the proposed change with justification as per the BIS format sending comments. |