
SPEED
LIMIT
17500
28000
km/h
EXIT

1
00:00:06,650 --> 00:00:04,340
this morning we're going to find out

2
00:00:09,200 --> 00:00:06,660
more about feeding station crew members

3
00:00:10,700 --> 00:00:09,210
and their Thanksgiving menu my guest is

4
00:00:14,209 --> 00:00:10,710
Vicky klaris the international space

5
00:00:17,450 --> 00:00:14,219
station food system manager make sure

6
00:00:19,400 --> 00:00:17,460
you get that right having me um thanks

7
00:00:22,099 --> 00:00:19,410
for having me today

8
00:00:24,710 --> 00:00:22,109
in general Vicky tell me how much food

9
00:00:28,279 --> 00:00:24,720
does it take feed an astronaut well if

10
00:00:32,049 --> 00:00:28,289
you look on the average we're looking at

11
00:00:35,299 --> 00:00:32,059
about four pounds of food and packaging

12
00:00:37,869 --> 00:00:35,309
per person per day four pounds a day

13
00:00:40,520 --> 00:00:37,879

that sounds like a lot yeah it is a lot

14
00:00:42,350 --> 00:00:40,530
and when you consider some of that is

15
00:00:45,860 --> 00:00:42,360
dried and they're having to add water to

16
00:00:48,590 --> 00:00:45,870
it then yeah it is a lot do American

17
00:00:50,750 --> 00:00:48,600
astronauts only eat the American food

18
00:00:53,000 --> 00:00:50,760
that you and your folks are getting

19
00:00:55,700 --> 00:00:53,010
ready for them well our responsibility

20
00:00:58,520 --> 00:00:55,710
is to feed the three u.s. what's called

21
00:01:00,349 --> 00:00:58,530
u.s. OS the US segment crewmembers and

22
00:01:02,660 --> 00:01:00,359
then there's three cosmonauts onboard

23
00:01:05,479 --> 00:01:02,670
and the Russians have the responsibility

24
00:01:08,390 --> 00:01:05,489
to provide food for those however it is

25
00:01:10,609 --> 00:01:08,400
up to the crew on orbit to decide how

26
00:01:13,969 --> 00:01:10,619
they share the food and how often they

27
00:01:16,130 --> 00:01:13,979
share the food so yeah they do share and

28
00:01:18,469 --> 00:01:16,140
it varies from increment crew to

29
00:01:20,990 --> 00:01:18,479
increment crew as to how much how far in

30
00:01:23,390 --> 00:01:21,000
advance do you have to work to plan for

31
00:01:25,249 --> 00:01:23,400
this to mean to get for instance food

32
00:01:28,270 --> 00:01:25,259
for vary will more on the station when

33
00:01:32,780 --> 00:01:28,280
he is there actually we are working and

34
00:01:37,100 --> 00:01:32,790
typically about 18 months in advance so

35
00:01:40,280 --> 00:01:37,110
we have a standard menu so much most of

36
00:01:43,460 --> 00:01:40,290
the core menu is the same and so you

37
00:01:45,440 --> 00:01:43,470
know we just pre position that but then

38
00:01:48,230 --> 00:01:45,450

each crew member gets a certain amount

39
00:01:50,960 --> 00:01:48,240
of preference food we call them bonus

40
00:01:53,240 --> 00:01:50,970
containers and so they you know that

41
00:01:55,219 --> 00:01:53,250
container has their name on it with

42
00:01:57,289 --> 00:01:55,229
their selections in it and so that's

43
00:01:59,660 --> 00:01:57,299
what we have to be sure is there at the

44
00:02:01,819 --> 00:01:59,670
right time for them to utilize and are

45
00:02:04,580 --> 00:02:01,829
you able to use all of the different

46
00:02:06,830 --> 00:02:04,590
delivery ships the delivery trucks that

47
00:02:09,260 --> 00:02:06,840
are going to the station yes over time

48
00:02:11,180 --> 00:02:09,270
we have used them all we used to use the

49
00:02:13,410 --> 00:02:11,190
progress a lot but now that we have the

50
00:02:16,230 --> 00:02:13,420
commercial carriers on board

51
00:02:19,830 --> 00:02:16,240
SpaceX and orbital so we're not using

52
00:02:23,070 --> 00:02:19,840
progress as much for food but we have

53
00:02:26,430 --> 00:02:23,080
used progress we use HTV which is the

54
00:02:29,700 --> 00:02:26,440
JAXA cargo vehicle we used ATV when it

55
00:02:32,100 --> 00:02:29,710
was flying and so yeah we utilize all

56
00:02:33,960 --> 00:02:32,110
these different cargo vehicles if you're

57
00:02:36,810 --> 00:02:33,970
working that far in advance you've got

58
00:02:39,120 --> 00:02:36,820
to be sending things that can stay good

59
00:02:42,000 --> 00:02:39,130
for that long that need some kind of

60
00:02:43,560 --> 00:02:42,010
special preservation yes so the

61
00:02:45,480 --> 00:02:43,570
challenge that we have is that there are

62
00:02:48,390 --> 00:02:45,490
no dedicated freezers or refrigerators

63
00:02:50,490 --> 00:02:48,400

for food on orbit so all of our food has

64
00:02:53,250 --> 00:02:50,500
to be shelf stable and last for a very

65
00:02:55,710 --> 00:02:53,260
long time so we're using freeze-dried

66
00:02:58,020 --> 00:02:55,720
products we're using thermal stabilized

67
00:03:00,390 --> 00:02:58,030
products which are like canned products

68
00:03:02,490 --> 00:03:00,400
except we put ours in pouches instead of

69
00:03:05,280 --> 00:03:02,500
cans because the pouches are lighter in

70
00:03:09,080 --> 00:03:05,290
weight which is advantageous when you're

71
00:03:11,250 --> 00:03:09,090
launching it to orbit so yeah we use

72
00:03:14,330 --> 00:03:11,260
really and when we do use some

73
00:03:17,640 --> 00:03:14,340
irradiated meat products as well so

74
00:03:20,550 --> 00:03:17,650
we're using a variety of products that

75
00:03:22,830 --> 00:03:20,560
create shelf stable items you've got a

76
00:03:25,949 --> 00:03:22,840
few samples here are some of these the

77
00:03:28,650 --> 00:03:25,959
things that are thermo stabilized and

78
00:03:30,750 --> 00:03:28,660
yes actually thermos table eyes products

79
00:03:33,150 --> 00:03:30,760
so for example the turkey that they have

80
00:03:36,360 --> 00:03:33,160
available to them for tomorrow if they

81
00:03:38,759 --> 00:03:36,370
choose to use it for Thanksgiving this

82
00:03:43,680 --> 00:03:38,769
is a thermos well this has been actually

83
00:03:45,479 --> 00:03:43,690
made shelf stable by irradiation so this

84
00:03:47,580 --> 00:03:45,489
is product is ready to eat they just

85
00:03:50,070 --> 00:03:47,590
warm it up cut it open and eat out of

86
00:03:52,290 --> 00:03:50,080
the package with a fork or spoon we also

87
00:03:55,290 --> 00:03:52,300
have for instance we have candied yams

88
00:03:59,190 --> 00:03:55,300

this is like a canned product so this is

89
00:04:01,020 --> 00:03:59,200
thermo stabilized and it but it has been

90
00:04:03,840 --> 00:04:01,030
done in a pouch to make it lighter in

91
00:04:06,060 --> 00:04:03,850
weight so we have many of the

92
00:04:08,610 --> 00:04:06,070
traditional products available to them

93
00:04:11,310 --> 00:04:08,620
that you and I might have on our table

94
00:04:13,530 --> 00:04:11,320
tomorrow so we do have a dressing a

95
00:04:16,140 --> 00:04:13,540
cornbread dressing it's freeze-dried so

96
00:04:18,150 --> 00:04:16,150
they would add hot water to this and we

97
00:04:21,240 --> 00:04:18,160
have mashed potatoes we have green beans

98
00:04:21,599 --> 00:04:21,250
and mushrooms the best Regine are the

99
00:04:23,909 --> 00:04:21,609
beans

100
00:04:26,370 --> 00:04:23,919
well no not at state not in that state

101
00:04:29,159 --> 00:04:26,380
they'll be greener when you add water

102
00:04:31,860 --> 00:04:29,169
and then we have a powdered beverages in

103
00:04:34,620 --> 00:04:31,870
this case I brought a tea with lemon and

104
00:04:36,360 --> 00:04:34,630
sugar so they would rehydrate this put

105
00:04:38,010 --> 00:04:36,370
it in the they do have a small chiller

106
00:04:39,330 --> 00:04:38,020
where they can chill their beverages and

107
00:04:41,820 --> 00:04:39,340
then they would have to drink the

108
00:04:45,240 --> 00:04:41,830
beverage through a straw they don't have

109
00:04:47,820 --> 00:04:45,250
a unit send up the Thanksgiving meal

110
00:04:49,499 --> 00:04:47,830
right no we pack what's called pea tree

111
00:04:50,670 --> 00:04:49,509
stuff so all the meats are together all

112
00:04:52,559 --> 00:04:50,680
the veggies are together and they

113
00:04:56,249 --> 00:04:52,569

actually assemble their meals real time

114
00:04:59,070 --> 00:04:56,259
so crew members so we don't have a like

115
00:05:00,420 --> 00:04:59,080
a set-aside meal for Thanksgiving but

116
00:05:02,790 --> 00:05:00,430
they do have all these products

117
00:05:04,140 --> 00:05:02,800
available to choose from and crew

118
00:05:06,719 --> 00:05:04,150
members who know that they're going to

119
00:05:09,779 --> 00:05:06,729
be on orbit during the holidays they

120
00:05:12,629 --> 00:05:09,789
often put special items in their bonus

121
00:05:15,719 --> 00:05:12,639
containers with the holidays in mind so

122
00:05:17,129 --> 00:05:15,729
we don't typically reveal what crew

123
00:05:18,809 --> 00:05:17,139
members have chosen for their bonus

124
00:05:21,120 --> 00:05:18,819
containers but I can tell you in the

125
00:05:23,219 --> 00:05:21,130
past crew members have taken things like

126
00:05:26,390 --> 00:05:23,229
cranberry sauce that they wanted to have

127
00:05:29,249 --> 00:05:26,400
on orbit some of the shelf-stable icings

128
00:05:31,230 --> 00:05:29,259
frostings that you get in tubs they'll

129
00:05:34,589 --> 00:05:31,240
take those and they'll decorate cookies

130
00:05:37,469 --> 00:05:34,599
with those for the holidays so crew

131
00:05:39,480 --> 00:05:37,479
members who you know who want to do have

132
00:05:42,360 --> 00:05:39,490
a means to take some special items to

133
00:05:45,810 --> 00:05:42,370
orbit for the holidays and they've got

134
00:05:48,390 --> 00:05:45,820
all of the American food to draw and

135
00:05:51,060 --> 00:05:48,400
plus every bus Russian face and right

136
00:05:53,430 --> 00:05:51,070
now we have an ISA crew member on board

137
00:05:57,270 --> 00:05:53,440
Samantha Christopher Eddie and so she

138
00:06:00,510 --> 00:05:57,280

has taken some specialty ISA European

139
00:06:03,029 --> 00:06:00,520
items with her and so I'm sure and she

140
00:06:05,279 --> 00:06:03,039
has taken enough that there is enough to

141
00:06:07,290 --> 00:06:05,289
share with her fellow crewmates so I'm

142
00:06:09,300 --> 00:06:07,300
sure some of those will likely be

143
00:06:11,879 --> 00:06:09,310
involved in their joint meal for the

144
00:06:14,070 --> 00:06:11,889
holiday tomorrow do they have to make

145
00:06:16,920 --> 00:06:14,080
any special provision on-orbit for the

146
00:06:19,950 --> 00:06:16,930
leftovers well actually they can't keep

147
00:06:23,370 --> 00:06:19,960
leftovers on orbit since since we don't

148
00:06:25,770 --> 00:06:23,380
really have a refrigerator there you

149
00:06:27,570 --> 00:06:25,780
know they really have to either eat it

150
00:06:31,680 --> 00:06:27,580
or toss it because they really don't

151
00:06:32,520 --> 00:06:31,690
have a way to preserve leftovers so four

152
00:06:35,040 --> 00:06:32,530
pounds a day

153
00:06:37,769 --> 00:06:35,050
that sounds like a lot but you have to

154
00:06:39,519 --> 00:06:37,779
remember that's the packaging as well as

155
00:06:42,729 --> 00:06:39,529
the container that it's in

156
00:06:46,149 --> 00:06:42,739
it's not just paid out but it still is a

157
00:06:47,769 --> 00:06:46,159
significant amount yeah Vicky was very

158
00:06:49,029 --> 00:06:47,779
interesting to learn about this thank

159
00:06:50,739 --> 00:06:49,039
you thank you for coming today

160
00:06:52,689 --> 00:06:50,749
well you're welcome Vicky klaris is the