

**Chr. Hansen Holding A/S
Q2 2018/19 Results & Joint Venture with Lonza
Conference Call Transcript**

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Operator: Thank you for standing by, and welcome to the presentation of Chr. Hansen's results for quarter two 2018/'19. At this time, all participants are in a listen only mode. There will be a presentation followed by a question and answer session.

At which time, if you wish to ask a question, you will need to press star one on your telephone. I must advise you that this conference is being recorded. I would now like to hand the conference over to your speaker today, Chr. Hansen's CEO, Mauricio Graber.

Mauricio Graber: Thank you. Good morning, everybody, and welcome to Chr. Hansen's investor and analyst call on the publication of our Q2 2018/'19 results.

In addition to the discussion of our quarterly results, we will dedicate part of today's call to the strategic joint venture with Lonza that we announced last night. To do so, I have invited our Executive Vice President for Health & Nutrition, Christian Barker, to join our CFO, Søren Westh Lønning, and me for this call.

We will do about 30 minutes of presentation, first, on Q2, and then on the joint venture, followed by 45 minutes of Q&A. Before we start, please take notice of the safe harbor statement on Slide 2. Thank you.

Let's move to Slide 3. During the first 6 months of our financial year 2018/'19, we made good progress on our strategic agenda and once again delivered a solid set of financial results.

On group level, we saw the momentum from the first quarter continue, leading to 9 percent organic growth year-to-date. EBIT margin before special items expanded by 80 basis points to 27 percent year-to-date, driven by all 3 business areas, with a clear contribution from the Copenhagen site expansion.

Free cash flow before special items and acquisitions came in at EUR 8 million year-to-date driven by strong operating cash flows on one side and partly offset by higher CapEx spending.

On segment level, please turn to Slide 4. Both Food Cultures & Enzymes and Health & Nutrition contributed double-digit organic growth rate year-to-date, whilst Natural Colors developed less dynamically due to declining raw materials and slower momentum in Latin America and Asia Pacific.

Looking at the quarter separately. As expected, momentum in Food Cultures & Enzymes increased in Q2 with a strong contribution from volume, leading to 11 percent organic growth, whilst Health & Nutrition reported mid-single-digit organic growth of 6 percent after an extraordinary strong first quarter.

Let me note that volatility has always been more of an element of our Health & Nutrition business as we continue to see quarterly swings due to the individual business being still comparably small and, as such, more vulnerable to timing of orders or large project wins.

That said, the underlying market dynamics that we saw in Q2 remain unchanged compared to the prior quarter, with a more balanced growth contribution between Human and Animal Health.

I would like to reinforce that we remain confident on the full year and our overall strategy for Health & Nutrition. In Natural Colors, we were very

pleased to see the large conversion projects with key customers in North America materializing in Q2.

The strong performance, though, was partly offset by declining raw materials and slower momentum in certain emerging markets, leading to 5 percent organic growth for the quarter. All in all, we delivered a solid set of results that make us confident in our outlook for the remainder of the year.

For me as CEO, continuing to deliver quarter-by-quarter is the best route to winning in the long term. At the same time, as we execute our Nature's no. 1 strategy and strengthen our portfolio outside of the traditional dairy business, we need to make sure that we focus on making the right strategic decisions for the long term.

Please turn to the next slide, Slide #5. Talking about Nature's no. 1, as you know, our Nature's no. 1 strategy is built along three layers, driving penetration of innovation, strengthening our position in growth markets, and driving operational excellence, all with the goal to fully leverage the potential of Food Cultures & Enzymes, expand our microbial platform in Health & Nutrition and create further value in Natural Colors.

Within the Nature's no. 1 framework, commercialization of innovation is clearly one of my top priorities as CEO, and I am really pleased with the progress that we have made so far this year.

We will talk about the joint venture with Lonza in a couple of minutes, but it's clearly a quantum leap for our human microbiome lighthouse and will accelerate our efforts in this new adjacent field.

But we are not only driving innovation in Health & Nutrition, but also in Food Cultures & Enzymes and Natural Colors where we launched some exciting new products during the past 6 months.

Let me start with Natural Colors. We strengthened our coloring from foodstuff portfolio with the launch of the Hansen sweet potato, an excellent alternative to synthetic red colors and carmine. Also earlier this year, we

brought to the market a completely new range for dog and cat food applications.

Moving on to Food Cultures & Enzymes. We expanded our dairy alternative range, NU-TRISH, with a new probiotic culture which contains LGG, the world's best documented probiotic strain, with which we are looking to further strengthen our position in this fast-growing market segment, particularly in the U.S. Furthermore, today, we officially launched our new cheese coagulant, CHY-MAX Supreme, a strategic milestone for our cheese business.

Please turn to Slide 6 where I will talk more about CHY-MAX Supreme. CHY-MAX Supreme significantly raises the bar for cheese performance. It's our third-generation enzyme coagulant and is the result of 5 years of intense research and development, and it outperforms the leading coagulant in the market.

It enables cheesemakers to increase yield by up to 1 percent without compromising quality and it delivers superior functionalities, as outlined in this page. CHY-MAX Supreme can be applied to a broad variety of cheese types, and we expect it to become a cornerstone of our coagulant portfolio going forward.

On Slide 7, I would like to comment that we've talked a lot about the product launches that support our vision of improving food and health and contribute to our sustainability agenda.

It's not least because of the depth and innovation power of our broad portfolio, but Chr. Hansen has been named the most sustainable company in the world by Corporate Knights at the end of January. Out of 7,500 corporations worldwide, Chr.Hansen was chosen because of its unique product portfolio and our efforts to quantify our contribution to the UN Global Goals.

As per our last financial year, 82 percent of our revenue contributes to the Sustainable Development Goals. We feel very humble and proud to have

received this award and hope to use this external recognition to raise more awareness for what we consider the era of good bacteria going forward.

After having shared the highlights of the first half of our financial year 2018/'19, let me now continue with a deep dive into our financials.

Please move to Slide 8. If we look at our regional performance, our largest region, Europe, Middle East and Africa, delivered a solid growth of 9 percent in Q2 and year-to-date, driven by strong growth in Human and Animal Health and a solid growth in Food Cultures & Enzymes and Natural Colors.

In Q2, Food Cultures & Enzymes developed stronger, while Animal Health care declined due to changes in the distribution setup. In North America, Q1 dynamics continued in the second quarter, leading to 5 percent organic growth for Q2 and year-to-date.

Natural Colors delivered strong organic growth, driven by the aforementioned conversion projects, and Food Cultures & Enzymes reported solid growth, while Human Health and Animal Health were impacted by difficult market conditions in dietary supplements and cattle, respectively.

Turning on to Asia Pacific, the first half of the financial year showed mixed results. Whilst momentum in FC&E improved slightly in Q2, leading to a good organic growth year-to-date, Human Health declined due to timing of orders with dietary supplement customer, and Natural Colors was impacted by the mentioned declining of raw materials and slower momentum. Overall, this led to a flat result for Q2 and 5 percent organic growth year-to-date in Asia Pacific.

Finally, in Latin America, organic growth came in at 23 percent in Q2 and 27 percent year-to-date. As in the prior quarter, Food Cultures & Enzymes and Health & Nutrition continued their strong growth path, while Natural Colors faced headwinds from raw materials and the challenging economic climate.

Roughly half of the organic growth in Q2 and year-to-date can be attributed to Europe rising. With this, I would like now to hand over to Søren for the review of our business areas and the group financials.

Søren Lonning: Thank you, Mauricio, and good morning to everyone on the phone. Food Cultures & Enzymes delivered strong organic growth of 11 percent in the second quarter and 10 percent year-to-date, driven by cheese, enzymes and meat.

Fermented milk and probiotics reported solid growth in the first half of the year, and we are pleased to see high momentum in probiotics in Q2 benefiting from non-starters product launches in the nondairy segment.

Bioprotection reported double-digit growth on a demanding comparable growth of 45 percent last year and remains on track to deliver on our EUR 200 million lighthouse target by 2025.

As flagged on the last call, we had some customer-specific incidents that negatively affected sales in Q1 and partly in Q2, but this is now behind us.

Overall for Food Cultures & Enzymes, volume in the second quarter picked up again, leading to 7 percent volume growth in Q2 and 6 percent year-to-date, whilst pricing decreased from 4 percent in Q2 and year-to-date.

Looking at profitability, the EBIT margin for Food Cultures & Enzymes increased by 0.6 percentage point year-to-date, driven by the ramp-up of the new capacity in the Copenhagen site.

The gross margin improvement from the capacity expansion in excess of 1 percentage point was partly offset by investments in strategic initiatives, such as bioprotection and digital services, as well as an increase in sales and application support.

In Q2, the Food Cultures & Enzyme margin was 32.1 percent, up 1.1 percentage point, and again driven by scalability benefits from the Copenhagen ramp-up as well as other production efficiencies.

Please turn to the next page, Slide 10. Health & Nutrition reported double-digit organic growth of 11 percent year-to-date, driven by strong growth in Plant Health and Human Health.

Q2 was clearly weaker with 6 percent organic growth. However, this does not reflect any structural changes but is an expression of the quarterly volatility that results from customer order patterns and launches, as already mentioned by Mauricio.

Human Health reported strong growth in Q2 in infant formula across all regions, while dietary supplements posted solid growth in EMEA but flat sales growth for the remaining regions.

North America continued to be impacted by a challenging market environment, whereas APAC declined due to timing of orders with a single customer. Overall, this led to solid growth from Human Health in Q2 and strong growth year-to-date.

If we look at Animal Health, Q2 developed more favorable than Q1. However, farmers in the U.S. continue to be under pressure, particularly in the cattle segment. Furthermore, revenues in the swine segment were impacted by a change in the distribution setup in EMEA.

On a positive note, poultry showed strong growth and silage recovered to solid growth in Q2, leading to overall modest growth for Animal Health in Q2 and slight growth for the first half of the year.

Lastly, in Plant Health, we continue to roll out our bionematicide to sugarcane farmers in Latin America, leading to strong growth for the quarter and year-to-date, albeit still on a modest base. Overall, the lighthouse is developing well, and we expect to have the state registrations in the U.S. completed by the end of our financial year.

If we look at the margin development for Health & Nutrition, the EBIT margin year-to-date has improved slightly as production efficiencies, favorable

product mix and a positive tailwind from currency were partly offset by strategic investments under Nature's no. 1.

In Q2, profitability decreased by 1.5 percentage point due to investments in strategic initiatives such as Plant Health and higher production cost, partly offset by a positive currency tailwind, mainly from the U.S. dollar.

Let's continue with Natural Colors on the next slide, Slide 11. For the first 6 months of FY '19, Natural Colors reported 5 percent organic growth with strong contribution from our coloring foodstuff range.

We saw very strong growth in North America, driven by conversion projects with large customers, and solid growth in EMEA. Whilst LATAM and APAC showed low momentum due to challenging economic conditions and larger exposure to annatto and carmine. This picture reflects both Q2 and year-to-date.

The raw material price declines in annatto and carmine impacted pricing negatively but were largely offset by price increases in other pigments year-to-date. In Q2, though, raw materials led to negative pricing of 1 percent, and we expect to see a continuation of this trend for the remainder of the year.

If we look at margins, year-to-date, the EBIT margin has improved by 2 percentage points to 10.9 percent, driven by operating efficiencies, a soft baseline last year and declining raw materials, partly offset by currency headwinds.

In Q2, the margin increased by 1.5 percentage points, reflecting, in addition to the before-mentioned drivers, also last year's management change in Natural Colors.

Moving on to the group financials on the next page, Page 12. Group organic growth came in at 9 percent year-to-date with a volume component of 6 percent and a 3 percent contribution from price.

As already said, pricing came down in Q2 because of emerging market currencies revaluated slightly and this reduced the impact from euro pricing. The impact from currencies on the top line was minus 2 percent, while the Hundsbichler acquisition that we announced in Q1 did not have a material effect.

If we look at the P&L, gross margin improved by 1.8 percentage point year-to-date, driven by all 3 businesses, while sales and marketing expenses increased by 17 percent due to investments in Nature's no. 1 and sales and application support for Food Cultures & Enzymes.

Overall, this led to an EBIT margin before special items of 27 percent for the first half of the year, up 80 basis points. In Q2, the EBIT margin before special items was 27.8 percent compared to 20 percent last year. The impact on currency has been immaterial.

Lastly, primarily in connection with the Hundsbichler acquisition, we booked special items of EUR 1 million, resulting in an EBIT margin of 26.9 percent year-to-date and 27.6 percent in Q2. For the full year, we expect special items of around EUR 3 million related to both Hundsbichler and the recently announced joint venture.

Please turn to the next slide, Slide 13, for the cash flow analysis. Free cash flow before special items and acquisition came in at 8 percent -- sorry, EUR 8 million year-to-date, driven by improvements in operating cash flow that were partly offset by increased investments and capacity expansions.

Operating cash flow increased by 19 percent, driven by growth in operating profit and a positive effect from working capital. And this was achieved despite higher taxes paid due to the absence of acquisition-related tax benefits.

Operational investing cash flow was 10.8 percent of revenue compared to 8.7 percent last year, in line with the increased CapEx budget of EUR 110 million to EUR 130 million net of sale and leaseback activities.

As you may recall, the main investment priorities for this year are the new freeze-dried and powder packaging facility for Food Cultures & Enzymes and Health & Nutrition as well as the upgrade of the R&D facility in Montpellier and the new U.S. facility for Natural Colors. All projects are well underway, and I expect it to be completed by the end of the next financial year.

Coming to the guidance on the next page, Page 14, we do maintain the overall outlook for the group. For FY '19, we continue to expect organic growth for the group to be in the range of 9 percent to 11 percent with higher-than-normal impact from euro pricing driven -- driving the guidance above our long-term ambition.

As you know, euro pricing is mainly relevant for our Food Cultures & Enzymes business where we expect growth to come in above the long-term ambition of 7 percent to 8 percent.

Health & Nutrition is expected to grow organically at 10 percent or above. For Natural Colors, we do adjust the guidance range to 5 percent to 7 percent from previously 6 percent to 9 percent. We make this adjustment in light of declining raw material prices and lower momentum in APAC and Latin America.

Looking at profitability, the EBIT margin before special items is still expected to be around 29.5 percent, supported by scalability benefits from the expansion in our Copenhagen facility, which will be partly offset by investments into our lighthouses and other Nature's no. 1 initiatives.

Lastly, free cash flow before acquisitions, divestments and special items is expected to remain at a level similar to FY '18 due to higher CapEx spending and the absence of acquisition-related tax benefits.

Please remember also that the free cash flow guidance assume a successful sale and leaseback of the company's main facility in Hørsholm in Q4. With this, I would now like to hand back to Mauricio for the second part of this call.

Mauricio Graber: Thank you, Søren. Please turn to Slide 15. As most of you have seen, yesterday, we announced that we signed an agreement with Lonza to create a strategic joint venture to pioneer the contract manufacturing market for bacteria-based pharmaceuticals, so-called live biotherapeutic products or LBP in short.

The joint venture is a quantum leap for Chr. Hansen's human microbiome lighthouse as it allows us to utilize our unique microbial capabilities in this rapid emerging market, while sticking to our strategy of not becoming a fully fledged pharma company. And we're really excited to team up with such a renowned pharma contract manufacturer at Lonza.

Let me now walk you through the highlights of the joint venture on the next slide, on Slide 16, before I hand over to Christian to go more into the details of the joint venture roadmap and implications for our Human Health business.

As scientific understanding of the microbiome advances, the market for bacteria-based pharmaceuticals is developing rapidly, and we see an attractive opportunity to tap into this completely new market.

We estimate that today, more than 200 projects are in preclinical to Phase III trials, and all of these projects need to be supplied with clinical trial material and later on will need a commercial manufacturing partner. And this is really what the joint venture aspires to do.

As equal partners, Lonza and Chr. Hansen are extremely well-positioned to serve this very promising market that is expected to exceed EUR 1 billion by 2035 as we bring competencies together that perfectly complement each other. If you ask me, it's not any 2 companies joining forces, but the #1 bacteria producer and the #1 pharma contract manufacturer.

Together with Lonza, we will invest EUR 90 million over the next 3 years in a phased approach to build a pharma-grade production setup, and the joint venture is expected to be largely self-funding once these manufacturing capabilities have been established.

As already stated initially, the decision to further pursue the human microbiome pharma opportunity with a partner is fully in line with our Nature's no. 1 strategy.

By teaming up with Lonza, we clearly accelerate our journey in the adjacent pharma market, and we gain access to noncore competencies needed to win in the space while balancing investment and executional risks.

The lighthouse does not affect our 2018/'19 financial outlook that Søren has just presented nor our 2021/'22 financial ambition that remains unchanged. But now there is a clear roadmap and a financial commitment to reach the implied lighthouse target beyond the planned period.

Chr. Hansen remains committed to its capital discipline and dividend policy. Over the next three years, though, the investment will most likely reduce our capacity to distribute excess cash to shareholders, but we strongly believe in the attractive business case of the joint venture that is very much aligned with our shareholders' interest who get the unique chance to participate in the development of this rapidly emerging new market. With this, I would like now to hand it over to you, Christian.

Christian Barker: Thank you, Mauricio, and a warm welcome also from my side. Please turn to Slide 17. As Mauricio already said, we are thrilled to team up with Lonza to build a leadership position in the very promising live biotherapeutics contract manufacturing market.

Today, manufacturing is one of the biggest bottlenecks for microbiome companies, and this joint venture will address this unmet market need like no one else.

As Chr. Hansen, we will bring more than 120 years of experience in strain development, upscaling and manufacturing, while Lonza will contribute its extensive know-how in drug delivery and encapsulation technologies as well as its CGMP manufacturing and regulatory expertise.

Together, we will be able to cover the entire value chain, from drug substance development to commercial CDMO. Moreover, the joint venture will possess unrivaled capabilities in formulating, producing and encapsulating strict anaerobic bacteria, perhaps the most important discipline in live biotherapeutics to date.

Being able to offer biotech and pharma customers development of drug substance and drug product in parallel is a huge advantage, as having one partner through the whole project life cycle not only ensures full technical alignment, but also increases the chance of first-time right and increases speed to market by up to 12 months.

As already said, the joint venture will be a 50-50 controlled legal entity with headquarters in Basel. And the investment of EUR 90 million will be deployed to build a pharma-grade production setup over a period of 3 years in Denmark and Switzerland. Initially, the joint venture will spend EUR 45 million to upgrade existing facilities in Hørsholm and equip new labs in Basel to serve preclinical to Phase II projects.

Drug substance development will be handled out of Hørsholm and Chr. Hansen will transfer its plant to the joint venture, whilst drug product development, including encapsulation, will be managed out of Basel.

Once customer demand for clinical Phase III projects and commercial supply is confirmed, the joint venture will then spend another EUR 45 million to construct a new production facility in Switzerland.

So what does the joint venture mean for our human microbiome lighthouse and the Human Health business going forward?

Please move to the next slide, Slide 18. For Chr. Hansen's human microbiome lighthouse, the joint venture is a quantum leap, which fully supports our Nature's no. 1 strategy of further developing our microbial platform within Health & Nutrition. Effectively, the joint venture becomes the lighthouse. Going forward, our Human Health and microbiome activities will therefore operate twofold.

Chr. Hansen will transfer its human microbiome activities that target pharma applications as well as the related anaerobic capabilities to the joint venture, while the development of next-generation probiotic health solutions remains at the core of our Human Health business.

Let me state very clearly that the decision to move the lighthouse into the joint venture does not negatively affect our remaining Human Health business, as the joint venture will not compete with our dietary supplements and infant formula business, but will rather focus exclusively on contract manufacturing for pharmaceuticals, e.g. live biotherapeutics, and it will also not engage in discovery work as Human Health is doing for supplements, for example, with strain X.

Human Health will continue to execute the strategy of developing microbiome-based probiotic health solutions. The focus will continue to be on dietary supplements and infant formula, whilst exploring further avenues in women's health and other novel areas.

The joint venture is the best option for Chr. Hansen to capitalize on our core microbial competencies in the adjacent pharma market whilst reducing investment and executional risk. In other words, we think it's a clear win-win. And with this, I would like to hand back to Mauricio to wrap up the call.

Mauricio Graber: Thank you, Christian. Let me wrap up very short so that we go straight to question and answers. The key messages I would like to highlight are Chr. Hansen delivered a solid set of results, and we are well on track to deliver on our 2018/'19 financial targets.

Having been named the most sustainable company in the world makes us feel very humble and proud, and we will take this award as additional motivation to drive our vision of improving food and health forward amongst other with new cheese coagulant, CHY-MAX Supreme.

Our three strategic lighthouse are on track to deliver on their 2025 goals. And for the human microbiome lighthouse, we now have a strong partner

with whom we will pioneer the emerging CDMO market for bacteria-based pharmaceuticals in a clear roadmap. Thank you very much for listening. And operator, please open the line for questions now.

Operator: (Operator Instructions). And your first question comes from the line of Anton Brink.

Anton Brink: If I may, four quick questions from my side. Firstly, could you elaborate a bit on the growth momentum in bioprotective cultures? I think we were all expecting a bit more after the Q1 statement during the conf call. So what has been the reason for the, I guess, weaker growth in Q2?

Søren Lonning: Yes, let me address that, Anton. So we had 10 percent year-to-date growth in bio-p, and you can say the pain point that we highlighted in the call in Q1 with a few large customers that had temporarily stopped buying is still, to some extent, hurting us in Q2.

We pointed out that, that was something that would continue also in Q2, but it has impacted us slightly more than we expected at the conf call. So when you look outside these very few customers, the underlying momentum is really solid in bio-p. We continued to have a solid pipe.

We continue to deliver strong growth. But we have a few large customers that is impacting growth in the first half. That being said, giving -- looking at the forward-looking indicators in bio-p, we do believe that the fundamental growth potential of bio-p remains intact.

And that's also why we, in this presentation here, reemphasized that we haven't seen anything that should change our belief in the long-term ambition for this business area.

Mauricio Graber: I would just add to that, Anton, that reducing food waste and our promise on bioprotection continues to resonate very well with customers as part also of our sustainability agenda. So on the new businesses in the pipeline, as Søren mentioned, gives us a lot of confidence on the visibility we have for our lighthouse.

Anton Brink: Okay. Then a more general question on Food Cultures & Enzymes. If I speak for myself, I was expecting a bit more weakness in terms of end market growth, given the recent difficulties that we've seen in U.S. dairy. Has that been a topic on your mind, whatsoever?

Mauricio Graber: I think we have articulated since the Capital Markets Day our growth strategy for Food Cultures & Enzymes.

And I think we continue to execute against that strategy of winning and converting in fresh dairy and in cheese as well as bringing new innovations into those categories, while expanding in the other three areas related to bioprotection and fermented beverages.

So from my perspective, I would say as I said in other calls, I think our business is largely driven by our ability to work and win with customers and less so into the fundamental inventories of the dairy market. Søren, I'll pass it to you if you want to complement.

Søren Lonning: Yes, and I think the -- if you look at the yogurt market in North America, I think it's a good example also to just touch upon. I mean, market growth in that segment is slightly declining.

However, we are still able to grow through the different levers, conversion, bringing new innovation, up-selling and pricing, of course. So we're not relying solely on the market growth dimension. And that goes both for the fermented milk, yogurt market and it goes for the cheese market.

Mauricio Graber: A good addition to that to provide some more light is when you look at the dairy alternative products or plant-based products, we continue to see good wins and a full pipeline as well in that category in a very vibrant market with small and entrepreneurial companies.

Anton Brink: Okay, clear. And then last question on Food Cultures & Enzymes should be in terms of the contribution of your best pricing mechanism. Could you give us an indication what we should expect in H2 there?

Mauricio Graber: Yes, let me address that. You should expect it to come down when it looks to euro pricing effect in the second half. And a lot of that is simply what happened with currency rates last year.

So what we saw last year was that several currencies continued to decline during our financial year '18. So it means that the baseline would be more challenging. You can say from that point of view in the second half of the year.

We have also seen recently, some currency movements that have actually reduced a little bit, the euro prices effect that we expect in the year. So both of those means that you will see a smaller effect in the second half. I will not quantify it, but you should definitely see a smaller effect in the second half.

Anton Brink: Okay, clear. Then last...

Operator: Our next question comes from the line of Annette Lykke.

Annette Lykke: First of all, in respect to bioprotection and -- can you say a little bit on how intense your client concentration are? Because it's a little bit of a surprise that 2 clients can sort of take away a quite substantial part of your growth.

And also, can you repeat to us that you are confident that this low growth rate is not a structural thing, it is purely related to this, as well as maybe elaborate a bit on when you see APAC, in particular China, to be a key contributor to the use of bioprotection? And then I have a follow-up question on the joint venture.

Mauricio Graber: So maybe I will take that and ask Søren to complement. I would say, Annette, overall, yes, we are very confident on bioprotection taking into consideration that this is a lighthouse, it's an emerging business.

So for sure, on a quarter-to-quarter, there are likely variations based on order patterns or on this case, our customer adoption. And it's also a field where our customers are learning how to use those bioprotection into their

products. So I think we have a diversified customer base that's quite granular.

But for sure, the customers we're talking are 2 very large customers that have -- that were early adopters of this technology. There's nothing in the lighthouse and the performance of our products that diverts from what we have shared.

And the second generation of bioprotection for sure is being a key enabler of the growth that we have said in more of the developing markets like China, where you have less of a stronger cold supply chain.

Annette Lykke: Okay. Then congrats on your joint venture, but I'd like to ask you when -- I mean, it looks very interesting but also very long term.

When will we see some -- I will say, first of all, any sort of a value indications in terms of either product launches income, all potentially proof of concept data in humans? When should we see some sort of key milestones that can give us some sort of more firm indication on how interesting this Microbiome joint venture is?

Mauricio Graber: Sure, Annette, a brief comment before I pass it to Christian. I think you're right, everything in pharma is longer term. However, as we have said, there's already a large amount of projects out there from preclinical to Phase II that are requiring support.

So while the full commercialization of live biotherapeutics will for sure take time, we believe that we will be, in the next few years, already in the business of supplying to customers. Christian, you may elaborate on that in more detail.

Christian Barker: Yes, happy to, Mauricio. We are very excited about this joint venture. And I think the way to think about it is in 2 stages. The first stage of the lifetime of the joint venture we're focusing on supplying partners that are conducting clinical trials.

And for this aspect, I think we have a reasonably high degree of predictability around the market. We believe that market will be worth EUR 150 million to EUR 200 million by 2025. Then the bigger question is longer term, what is the market for full commercial scale CMO services for live biotherapeutics?

And of course, that's a number that there's a lot of more uncertainty around because that ultimately will depend on the clinical success of the pipeline that our current customers are currently or potential customers are currently working through. And our estimate is that we think it will be significantly above EUR 1 billion by 2035.

It could also be significantly higher than that, it could also be lower. So the long-term potential is uncertain. But what I will say is that we have said in our release that we expect this joint venture to largely be self-funding as to the first 3 to 4 years of operation and that is very much our belief.

Annette Lykke: I get that, but is there any -- I mean, when should we see -- you have this card in Human Health, infant form. When should we see proof of concept, or what are the key milestones to look for? Are they 3 or 4 or 5 years ahead as well?

Mauricio Graber: So if we are talking about the JV, the JV will not do any discovery or clinical trials of new drugs at all. The JV will be a CDMO. So we basically will provide manufacturing of clinical supply samples for the customers that you do the discoveries and the clinical trials.

Annette Lykke: Okay, and to have any sort of endpoints being relevant than our side with the partners you have within those respective areas, when should we expect those?

Christian Barker: I mean, there's a lot of ongoing activity in the field, right? You currently have 7 Phase III clinical trials announced. If you go back 2 years, I think there were 0.

And you have probably 100 trials in total announced between Phase I and Phase III. And I think we'll all continue to monitor that pipeline in terms of

seeing how the various projects move through the trials that they are going through.

But I think there's enough trials going on out there that if you applied the classic statistics of Health & Nutrition that are used in the pharma industry there's quite a high likelihood that some of them will indeed become commercial or commercial sale.

Søren Lonning: And it's -- I think it's important to note also that the 2 stages that Christian is talking about, serving the first stage, the clinical trial business is very attractive in its own. I think that's an important point to mention.

Operator: Your next question comes from the line of Jonas Guldborg.

Jonas Hansen: First, a small follow-up on Annette's question here. You say that the clinical trial market is already running today. Could you just share with us how big that market is today then?

Mauricio Graber: So we don't have any current market number that we are ready to say. But obviously, there are clinical trials ongoing and there is a market for providing inputs to those trials.

Jonas Hansen: But should we look at this market as the one that you say will potentially will be EUR 150 million to EUR 200 million by 2025? Is this -- should we look at it as a very back-end loaded market development?

Mauricio Graber: There is a high growth rate in that market and in those projections. So the current market size would be significantly lower than that. And also, I think what's important is that there's a lot of unmet needs in the market.

We have done third-party market research to better understand the current situation and the needs of the customers, and we believe that this JV will bring a distinctive value proposition that actually will help ultimately, even accelerate this market.

And I think that, Christian, is a very important point because what we believe is that there has not been a true go-to-market manufacturing partner to support the area of live biotherapeutics.

So jointly with our partner, Lonza, we believe that our announcement yesterday will give -- will create a clear message around the manufacturing capabilities that we bring to even attract more attention to these developing space.

Jonas Hansen: Okay. Then I have 2 questions then. First of all, in Health & Nutrition, I'm sorry, but I'm a little bit confused here. There's been some timing of orders that has impacted both Q1 and Q2. Could you just tell us if -- is this timing of orders H1-related or is there also a spillover into Q3 now?

Mauricio Graber: Is it related to Human Health or Animal Health, or in what specific area?

Jonas Hansen: I think you're mentioning it in Human Health APAC.

Mauricio Graber: Yes, that -- the Human Health APAC is very much driven by something that happened last year, so the -- we had a partner in that region that did a major launch last year. And there was -- they ordered a lot of product, in particular Q2 last year.

So you can say that it's not so much a timing this year between Q2 and other quarters. It's more the baseline that in that particular region was very demanding for last year.

When we look at APAC in Health & Nutrition, and in particular, Human Health, we do believe that -- we do see a very strong underlying momentum. And we expect to move into a good growth mode in this business also for Asia Pacific going forward.

Jonas Hansen: Okay, so there's no specific timing of orders that will impact Q3 in the whole of Health & Nutrition?

Mauricio Graber: No, I think the other component that we talked to was a -- in Animal Health was that change in distributor setup in EMEA.

And here, you can say that can be a little bit of timing both towards the Q1 but also Q3. But I would say in larger scheme of things that is a lower impact when you sort of have that kind of dialogue with a distributor and change that model.

Jonas Hansen: Okay. Then my last question will be on Plant Health. If you could share with us how large a share of revenue it was in Health & Nutrition in Q2.

And then you said in the prepared statement that the state approval in the U.S. is now expected to be in place at the end of your financial year. Will that mean that you will be able to go to the market from Q1 next financial year?

Mauricio Graber: I think what we have said in relation to the timing, and I would pass it to Søren for the specific, is that on the -- we would like to go to market in the calendar year 2019. But that will be just the start-up. So yes, it will be reflected in our next fiscal year. And then on the specific number, Søren, maybe you want to comment on that.

Søren Lonning: Yes. When it comes to Plant Health and looking at how much that contribute of the Health & Nutrition business, it is to the tune of around 5 percent, when you look at it year-to-date in Plant Health.

So it is still a relatively small part of Health & Nutrition, but it is a fastly growing and emerging field for us. So we are very pleased with the progress that we see.

Operator: Your next question comes from the line of Michael Rasmussen.

Michael Vitfell-Rasmussen: Three questions from me. First of all, yet another follow-up question on bioprotection. Is it correctly understood that DSM have also launched some competing products within the field in the past year or so?

Is this impacting the growth when you exclude the 2 customers that halted production or is this something that you're not seeing? That's my first question. My second question is on the JV. So who actually initiated the contact between you and Lonza? And my last question is on the group guidance.

Now this is the second time you lowered the growth outlook for the NCD division. Does this mean that one should kind of conceptually think of this -- as group growth is now a little bit lower in the range or is there anything that you see in the other divisions that is maybe doing slightly better?

Mauricio Graber: Okay, starting with bioprotection, I think we believe we bring a unique proposition to bioprotection in the way we use our culture solutions, but there's many other competitors in the field that you could broader call sort of natural food protection.

Nothing that we comment on our growth, I think, has been effective by the competitive dynamics. We continue to see a very strong and leading position in the bioprotection proposition across all the regions.

On the joint venture, we have been doing that assessment for a long time, and I think so did Lonza. And it was a natural field -- natural connection for us to establish that. Christian, if you want to comment a bit further?

Christian Barker: No, absolutely, I think, we had obviously looked at a range different partnership alternatives through how we could move forward in this space and had reached a conclusion that Lonza is by far the most attractive partner we could see.

I think they on their side had reached quite at similar conclusions, and we've had then fruitful dialogue now for a very long time that precedes the formation of this JV that we announced today.

Mauricio Graber: Søren, I'll pass it to you for the question on corporate guidance.

Søren Lonning: Yes, regarding our guidance for the year, we have maintained 9 percent to 11 percent because we believe that it is in that range that is the outcome that we expect. So that means that both 9 percent, 10 percent and 11 percent are options that we can see.

It's also clear that with the lowering of Natural Colors sends our original guidance in 9 percent in October, and also the fact that the euro price list effect has declined to a smaller extent. We're talking close to 0.5 percentage point just below that. It means that it has not been easier. It hasn't been easier to deliver 11 percent.

So we do expect to see some areas stepping up in the second half, and that's what we are working to make happen, but overall, I mean, we do believe the 9 percent to 11 percent is the realistic field, but there are some things that have worked against us since we gave the original one.

Operator: Your next question comes from the line of Hans Gregersen.

Hans Gregersen: If we look on the LBG -- sorry, the LBP area, just to have a gauge on where we are, what's the revenue last year or this first half? That's the first question. Secondly, bioprotection, just to clarify, you stated growth around 15 percent in Q1, now around 10 percent.

Does that imply you have roughly seen growth around -- only around 5 percent in Q2 in itself? Going to CHY-MAX Supreme, I would assume that goes by a somewhat hefty price premium. Can you give any indication of what we're looking at versus existing product offerings?

On Natural Colors, you have launched a new alternative based on sweet potato versus carmine. How do you see that delivering in terms of growth and margin going forward? And then finally, in terms of the resignation by Christoffer, Mauricio, how do you work with success in planning in Chr. Hansen?

Mauricio Graber: Søren, do you want to take the one on...

Søren Lonning: Yes, let me do the bio-p, address the bio-p question. I think when it comes to this, it's -- we ended slightly below the 10 percent in Q2, but year-to-date, we are slightly above 10 percent.

So the reason for why we are -- when we report on bio-p it's a relatively small area and we have deliberately chosen not to report with decimals in this segment here. So we round to nearest 10 percent or 15 percent, 25 percent integer.

So it means that you cannot do a complete mathematical solution to this. But it is a fair assumption. It was slightly below 10 percent, but very, very little, below 10 percent in Q2. Then on the expected revenue for the JV, we have had...

Hans Gregersen: No, sorry, the question was how -- in your existing business, how much have you generated in revenue either last year or this first half just to have a starting point?

Søren Lonning: That's a very, very small number. So moving -- transferring this into a JV structure will not influence sort of the reported numbers or the outlooks in any material shape or form.

What you should be mindful is that there will now be a period until towards the end of this financial year Q1 of FY '20, where this will still be within Chr. Hansen but then it will be transferred out to a independent legal entity, and it will be consolidated in Chr. Hansen's books in a way that it will not impact our top line growth going forward. It will be reported as a -- on the financial items the net impact of that. And that's also why there's absolutely no impact on the Chr. Hansen short-term or long-term financial guidance.

Mauricio Graber: Yes, when you look at our Human Health activities, as we now focus on probiotics as supplements and infant formula that represents the core of our Human Health business.

So the live biotherapeutics is a new field that you should just consider that the revenue will start as part of the joint venture. On CHY-MAX Supreme, so

yes, I think, every time we bring new technology to market, it provides a technology advancement for our customers in productivity, in this case, further cheese production.

And it, for sure, comes as a margin premium for us where we share the benefits as well with our customers. So we expect that to be a continued positive impact on our mix and technology differentiation.

Christian Barker: May I just add one thing before we move on? I think you -- I think this is an excellent example on how you can innovate a traditional segment.

We have been in coagulant since the company was founded in 145 years ago, and this is -- it's very innovative. You have to bear in mind that cheese producers normally operating at a margin level of 4 percent to 8 percent with milk being the absolutely largest part of their cost structure.

So being able to help customer achieve a 1 percent yield improvement is a pretty, pretty amazing achievement and will be a very important discussion point with customers just to put it in perspective.

Mauricio Graber: So Natural Colors division on the Hansen sweet potato, we expect that to be a great product for new product launches. It offers a solution to new developments where you don't want to have synthetics on carmine.

And that's where we expect most of the growth to come. There may be also some conversions, but the product is quite unique and differentiated, so we have seen a lot of customer interest mainly on new development for new categories.

Hans Gregersen: And how is the price point?

Mauricio Graber: Obviously, the price point of anything that is coloring from foodstuff is more expensive than synthetics. So it's the price premium to customers but offers a really unique proposition and strong technology insulation.

Hans Gregersen: But if you look at it as a comparison, so let's say, the carmine from cactus lice, how does it rate there?

Mauricio Graber: It rates definitely more expensive and it would be by a material multiple. That's why we believe this is more suited for customers that look for a clean label, full coloring from foodstuff proposition.

Operator: Your next question comes from the line of...

Mauricio Graber: Sorry, just on the last question because I thought it was important about Christoffer in the succession. So Christoffer has been a great contributor to the organization. We are proud of his contribution over the last 11 years.

I think him pursuing a dream of becoming a CEO on a more entrepreneurial environment is something that as a leader I have to support. As you have noticed in the announcement, we have a tremendous strength in our pipeline.

Jacob Vishof Paulsen has been the leader of our Europe and North America sales organization, somebody that has consistently delivered results above our Nature's no. 1 strategy and who brings tremendous potential for our future success.

So on the one side, I'm sorry to lose Christoffer, and we wish him more success. On the other side -- as CEO, this represents an opportunity to continue to develop our talents internally and we move strongly and swiftly with that proposition.

Operator: Your next question comes from the line of Søren Samsøe.

Søren Samsøe: Firstly question in Health & Nutrition, where the sales into cattle farmers looks weak but seems like you expect them to come up second half but my question is more -- if we should maybe see this as a structural problem, given the -- you can say, the trends away from cattle meat and then also trends away from, you can say, dairies, milk-based dairies.

What makes you so sure this is not a structural issue? Second question is a follow-up on the CHY-MAX, the new enzyme that you call -- sorry, a culture that you call game-changing.

How long time do you think the rollout period will be? Is it something that we'll see impact already from this year? And then finally, a question on the JV. I know you are reporting it below EBIT, but maybe, how should we look at the profitability within the JV? What is it in this industry?

Mauricio Graber: Christian, now that you are with us this morning. Do you want to take the one on the cattle farmers...

Christian Barker: Yes, I guess, there's 2 questions, one is what is the outlook for global cattle consumption and then what is the situation right now in North America?

As we look at meat, you certainly have certain markets in parts of Western Europe and in parts of the U.S. where you see more people starting to consume less meat. But at the same time, you also have an emerging middle class in many huge countries around the world where you see meat consumption increasing.

So as we look at this, in the near and midterm, we don't envision any fundamental change in terms of the consumption patterns of meat when you look at it at a global level. Now as it relates to the current market conditions in North America, we do see that the farm gate milk prices in the U.S. have been very, very low.

We do see now some slight signs of improvement but there's no question that the environment for the average U.S. dairy farmer has been very, very tough over the past year, and that hurts both our cattle DSM business where we saw probiotics have added to the feed and also the silage inoculants, which in many cases, is sold to dairy farmers. We see some signs of improvement now in the prices and we'll have to see what now happens.

Mauricio Graber: I think on CHY-MAX Supreme, usually, our technologies have taken 5 to 7 years to fully deploy and mature into the market. Now we're excited because we just launched and already signed up our first customer.

So we see tremendous excitement in the market. And our hopes is that this will commercialize at a faster pace. But Søren, you may want to comment on that and also on the JV EBIT.

Søren Lonning: Yes, I think it is a really strong selling argument. We come up with the CHY-MAX Supreme. That being said, as you have also seen, previously in Chr. Hansen, it takes a bit of time to get customers to buy.

It's very encouraging what we've seen so far, already selling, but you should not expect a major change to the FY '19 numbers from this, especially if there's a ramp-up period to this and secondly, bringing innovation, up-selling opportunities is part of what our fundamental growth model.

So it's not a product either that changes our long-term financial ambition for Food Cultures & Enzymes. Regarding the JV and profitability, so here, you should think about it a little bit in stages.

So what we have said is that it will be requiring some capital in the first 3 to 4 years of the lifetime of the JV, and the majority of that is for CapEx investments, but it also we are infusing resources into really scaling this up fast. So it means that there will also be operational losses in the first couple of years.

As we alluded to in the company announcement, then we expect to be sort of being close to breakeven in a 3, maybe 4-year period. And hence, this is really the time where it needs some support from the parents in terms of financial support.

When you look at it in a more long-term perspective, in terms of how to think about profitability of this, I think the reference to put up here is that Lonza operating in the CDMO space already today have an EBIT margin that is close to 25 percent. This is a premium segment.

It will be definitely a premium segment compared to the overall portfolio of what Lonza engage in. So I do believe that using Lonza and then also considering that it is -- we are bringing something with a higher premium is the way that I would think about the sort of the profitability long term in this business.

Operator: Your next question comes from the line of Heidi Vesterinen.

Heidi Vesterinen: A few questions, please. So first, on Health & Nutrition, you talked about investing and building route-to-market. Could you talk about what exactly you're investing in?

And is this related to what we talked about earlier about the channel shifts in the market, how you're selling to premium customers, they were ill-positioned in terms of the channel shift? And I wondered, do you have an update on what you or your customers doing in reference to that to win back share?

And then second question on Animal Health. Are you seeing any impact from the floods in the Midwest, please? We heard that some livestock were killed. Does this impact your business at all?

Mauricio Graber: Heidi, good morning. I would say, in the route-to-market, it varies by each of our areas, and given the benefit that we have, Christian, he can comment on that, but when you look at Plant Health, we have talked about route-to-market more on building our partnerships beyond FMC.

When you look at our Animal Health, it's been more of our route-to-market to reaching sort of the right customers. And maybe, Christian, you can comment on that and as well on the channels in human.

Christian Barker: Absolutely, and in Animal Health, route-to-market is indeed our most important strategic ambition if we look at where we put our attention and our resources. And we have a situation where we have quite high

penetration of our solutions in North America, but still a very low penetrations in many markets within APAC and EMEA.

So when we talk about investing in route-to-market in Animal Health, we are talking about basically putting more technical experts on the ground that can support and optimize distributor relationships in the local markets to make sure that we drive growth.

We have done that over the past year, and we're basically seeing a very high payoff on that investment in terms of accelerated growth in the markets where we deploy the resources.

Mauricio Graber: Do you want to comment a little bit on Plant Health as well?

Christian Barker: Yes. No, I think as Mauricio said, on Plant Health, we have an existing partnership with FMC where they provide the route-to-market and the application expertise as well for the joint development of the products.

But we have also structured the FMC partnership in a way where we are free to also do partnerships with other parties. And that is certainly something where we have ongoing dialogues with relevant players in the market.

Mauricio Graber: And the second question was about the cattle...

Christian Barker: Yes, whether the flooding in the Midwest had an impact. I think when things like this occur, this including, I mean, it can have a smaller impact on Chr.

Hansen, but we would try to avoid blaming the performance in our business based on this weather incident. But of course, there can be a minor impact. But we should be able to grow in despite of that and that's our ambition.

Heidi Vesterinen: And then another one if possible on the JV. Is the agreement with Lonza exclusive in any way? Or can they actually work with others if they wanted to? And can they share this special encapsulation technology they have with other players in the market who are also involved in the human microbiome project?

Christian Barker: Yes, so within the field of the JV, which is live biotherapeutics, e.g. bacteria, end products that are bacteria in drugs, the JV is exclusive.

So we cannot do activities inside that field outside this JV and Lonza cannot either. Now what they do with their encapsulation technology outside the field of the JV, of course, is a different question, but the JV is exclusive inside the field.

Operator: Your next question comes from the line of Ben Gorman.

Ben Gorman: Most of my questions have been asked, but just a quick sort of follow-up on the Plant Health. I wanted to clarify the growth phasing in terms of Q1 and Q2 that you've seen over this year so far.

You mentioned that the business is now sort of 5 percent of the division. And I think you mentioned that it was a bit more than that in Q1. So I just wanted to sort of clarify, sequentially, have you seen a significantly lower revenue in Q2 for Plant Health?

And how much of an impact does this had on your year-on-year print from an organic point of view? And just sort of on that point, in Brazil, because you have the 2 planting seasons in sugarcane, et cetera, when are really going to be the big selling period to you guys in that business going forward?

Mauricio Graber: I think given the size of the business and the seasonality of the business, it will not be proper to sort of look at the absolute size of the business quarter-by-quarter to see if we are losing momentum or gaining momentum.

We are very much exposed given that a large of our business in Latin America, Brazil, they are very much exposed to these planting cycles, and Q4, our financial Q4 is the largest window for selling these solution as it is today.

That is something that can change a little bit depending on how much our partners want to bring in inventories in due time or optimize more the inventory before the season and so on.

So that gives a certain, you can say, a little bit volatility to that part. That being said, when it comes to the quarterly growth, it was high and very attractive double-digit growth in Plant Health in Q2.

So very strong growth compared to what is experienced in the same period of the planting season last year, and that reinforces also the trend that we have seen in recent quarters with Plant Health. So you should not be reading anything into that except that the momentum in Plant Health is very strong at the moment.

And, Christian, the other thing that we continue to see is that the efficacy of our solutions as biological alternatives continued to get a stronger acceptance in the markets.

Christian Barker: Absolutely. I mean, we've seen customers conduct trials that demonstrate that in some crops within Brazil, the biological solutions delivered same performance as the harshest chemical solutions you can find.

And so as we look at a lot of leading indicators in terms of customer adoption rates, outcomes of customers, field trials and so forth, we are very, very positive about the momentum we have in Plant Health.

Ben Gorman: Then can you just give us an idea about the scale of coverage in Brazil? I mean, is that significant upside to acreage for you guys still just in sugarcane, or you're pretty much everywhere where the previous toxic products was banned?

Christian Barker: Yes, so we -- sugarcane is still the biggest crop we have. We continue to see significant upside for further penetration in sugarcane. But more important, we also entered the soy market in Brazil last year which is a huge market. The Brazilian soy acreage is the second biggest in the world.

And the penetration is still very, very low but we see tremendous pickup of the products. Unfortunately, the soy market is very fragmented and that also means that the time to full penetration will be relatively long in this field but there's plenty of upside.

Operator: (Operator Instructions). There are currently no further questions at this time. Please continue.

Mauricio Graber: Well, we're then happy to be able to answer all your questions and appreciate the -- your engagement in the call this morning and wish everybody a good day ahead. Thank you very much.

Operator: That does conclude the conference for today. Thank you for participating. You may all disconnect.

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