2.3 Feeding 9 billion people by 2050

2.3.1 Issues and targets

To meet demographic and environmental challenges, progress needs to be made on cultivation practices and the group needs to develop its agronomy know-how. The materiality matrix, produced with the involvement of all Company stakeholders, highlights the priority areas: relationships with producers, food safety, preserving the soil, water resources and biodiversity. These key priorities are included in the Bonduelle Group’s CSR policy. The group’s aim is to produce high-quality vegetables which are accessible to the public and grown according to the values of respect for the land, people and the environment in general. For Bonduelle, the land is not merely a resource, but a habitat for living organisms which must be protected. The group shares these challenges with all of its 3,490 partner farmers.

Bonduelle is committed to producing quality vegetables by promoting responsible and sustainable cultivation methods, in partnership with farmers.

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<tbody>
<tr>
<td>ENVIRONMENTAL CHALLENGES</td>
<td>Encourage partner farmers to adopt environmentally-friendly practices</td>
<td>Work to summarize the initiatives taken by the best practice discussion group mobilized in Nord-Picardie</td>
</tr>
<tr>
<td>● Protect the soil and biodiversity</td>
<td>● Reduce the use of non-renewable natural resources</td>
<td>● Develop an alternative to thermal weed control of salad crops in Spain</td>
</tr>
<tr>
<td>● Reduce the use of non-renewable natural resources</td>
<td>● Reduce the use of phytosanitary products</td>
<td>● Group-wide exchanges between the different agricultural production areas via the Agronomy Research and Development Division</td>
</tr>
<tr>
<td>● Reduce the use of phytosanitary products</td>
<td>● Increase the number of partner farmer signatories of the 5th sourcing charter to 100% within five years</td>
<td>● Implement the sourcing charter in all agricultural production areas</td>
</tr>
<tr>
<td>● Measure the environmental impact of farming practices using indicators</td>
<td>● Develop pilot farms adopting alternative cultivation methods in all countries where the group operates</td>
<td>● Publish the performance summary of the pilot farms in Nord-Picardie</td>
</tr>
<tr>
<td>● Continue research into more environmentally-friendly agriculture</td>
<td>● Launch a plan to reduce agricultural upstream waste and optimize harvests</td>
<td>● Continue strip-till trials in Russia</td>
</tr>
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ECONOMIC AND CIVIL SOCIETY ISSUES

| Maintain and develop sound relationships with partner farmers | | Involvement of the agricultural world in “Salon international de l’agriculture” (International Agricultural Show), Paris |
| ● Maintain constant communication with partner farmers and the agricultural world | ● Develop partner loyalty within each business unit | ● Presentation of the results of the partner farmer satisfaction survey at the “Salon international de l’agriculture” (International Agricultural Show). |
| ● Develop partner loyalty within each business unit | ● Support our partners in the use of innovative vegetable-growing techniques | |
2.3.2 Group policy and resources implemented

To meet the needs and challenges of our countries and markets, the group’s agronomy organization is broken down by business unit, with each being responsible for its own agricultural policy. Their sales forecasts determine the activities of their Agronomy Departments for each business segment. The Agronomy Departments are the link between Bonduelle and its producer partners, from the time contracts are entered into with farmers until the vegetables are delivered to the plant. All of the steps managed are outlined in the diagram below.

Bonduelle’s research and development division lists and shares the best agronomy practices observed in the different regions where the group operates. It also leads the expert network and gives specific advice to the business units.

### KEY STAGES IN VEGETABLE CULTIVATION BY THE AGRONOMY DEPARTMENTS:

From seed to harvest, our Sourcing Charter tracks vegetable growing and sourcing in eight stages.

- **Stage 1: The Plot**
  - Plots are selected according to a rigorous process, based on the soil, the environment and water resources.
  - During this stage, we choose the seed and variety focusing on quality of taste and excluding all GMOs.

- **Stage 2: Sowing**
  - This stage is “Planting the crop”. It involves correct soil preparation giving priority to natural methods.

- **Stage 3: Cultivation**
  - Fertilization involves preparing a fertilization plan using both mineral and organic fertilizers.

- **Stage 4: Fertilization**
  - Careful management of plant protection products.

- **Stage 5: Irrigation**
  - Accurate water supply management, in terms of both quality and quantity.

- **Stage 6: Harvest**
  - Approval of the plot before the harvest, harvesting and washing the vegetables.

- **Stage 7: The Plant**
  - This last stage in the charter encompasses the sequence from field to plant.

- **Stage 8: The Plant**
  - Signature of growing contracts dependent on sales forecasts and inventory levels. Signature of the agronomic sourcing charter.
2.3.3 Bonduelle and its agricultural partners

Bonduelle maintains close relationships with its producer partners (3,490 partners grouped into producers’ associations in some countries). These relationships help ensure the quality and yield criteria required for Bonduelle’s business are met and encourage producer partners, who supply around 90% of its vegetables, to limit their impact on the environment. Bonduelle rarely produces its own vegetables, choosing instead to assign this task to trusted partners under contractual agreements. The only exceptions are in Russia, where Bonduelle is its own producer (see diagram below).

- The Bonduelle Group’s Vegetable Sourcing Model, Spain and Canada, where the group operates farms to meet some of its needs, and France for mushrooms. Bonduelle also works with independent producers and buys vegetables that it does not produce (pulses, in particular) from brokers.

This approach allows the Company to concentrate on its core business of vegetable preparation whilst at the same time developing its agronomic know-how. Bonduelle also works with service providers able to take care of transport, planting, harvesting and other cultivation activities. This avoids producers having to invest heavily in special equipment.
Bonduelle attended the “Salon international de l’agriculture” (International Agricultural Show), held in Paris in February-March 2015. This first-time attendance was conducted in partnership with French producer organizations with which the group works, the stands being manned jointly by producers and Bonduelle teams which presented their processes. The “Salon international de l’agriculture” (International Agricultural Show) was an opportunity to unveil the results of a global survey conducted in 2013-2014 by the French market research company IPSOS for Bonduelle on all of its partner farmers. This initiative, unprecedented in the sector, measured the satisfaction of the farmers working for the group. 77% of them were satisfied with their partnership with Bonduelle. Producing vegetables for Bonduelle gives farms a positive image. Most of the producers would recommend working with Bonduelle to a colleague. Another significant fact: 70% of producers think that the sourcing charter – a new version of which was published in 2015 – is beneficial to the sector. 89% said that the relationship with their field supervisor was satisfactory. This survey also helps define priorities for progress, particularly as regards communication.

2.3.4 Charter and certification

Bonduelle’s agronomic sourcing charter sets out rules that all partner producers are asked to sign. This charter is an exclusive contractual commitment covering the process from seed to harvest to ensure that Bonduelle’s specifications are strictly adhered to, from selection of plots of land and seed selection to cultivation methods. 99% of Bonduelle’s producer partners have signed agreements to comply with the agronomic sourcing charter, formalized by the group for the first time in 1996.

The 5th version of the agronomic sourcing charter was officially unveiled at the “Salon international de l’agriculture” (International Agricultural Show) 2015. This latest version, which is being rolled out in the group’s various agricultural production areas, takes into account Bonduelle’s international expansion and specific factors encountered in the various geographical regions and production chains. It also emphasizes new topics such as water conservation and protection for the people working in the fields. This charter is the result of a participatory process led by Agronomy Managers in various countries and business lines. The charter is testimony to Bonduelle’s ongoing commitment to using environmentally-friendly farming techniques.

100% of Bonduelle’s salad production is Global Gap certified. This protocol combines best agricultural practice guidelines outlining the global requirements that agricultural and horticultural companies must meet in terms of food safety, sustainability and quality.

2.3.5 Preparing for the future of agriculture

RESPECTING THE LAND AND BIODIVERSITY

The group monitors the land through the crops in the fields and supports its partner producers in a preventive approach, by selecting the plots of land best suited to different types of vegetables and encouraging regular crop rotation so as not to deplete land resources, while promoting biodiversity and better yields. The group has also introduced a method of predictive tests on the land, to prevent diseases which could endanger seedlings, and thereby reducing the risks of crop failure and waste of natural resources: seeds, fertilizers, water, etc. According to the same principle of early detection, observation networks have been established to operate as early-warning systems if pests are detected. For example, in France, based on the information gathered, producer partners receive recommendations on the best techniques to use to control these risks. This initiative forms an integral part of the biological monitoring system established by the French Ministry of Agriculture, which has been run by industry professionals since 2010.

Strip-tilling, a simplified cultivation technique, is being tested by Bonduelle in Russia, where the test protocol has been very positive: on the hectares cultivated using this method, there was a drastic decrease in fuel use (-50%) and in the use of mineral fertilization. Strip-tilling also gives the land better protection against erosion, as it is covered in winter with the residue from the previous crop. Ultimately, strip-tilling helps to protect biodiversity and promotes microbe growth. These performances have led Bonduelle to extend the trials in 2014-2015. Strip-tilling is also used by Soléal (South-West France) to grow sweet corn. Sowing takes place under a barley cover. This plant avoids leaching during winter rains and protects the maize crop.

SEED SELECTION

Seed selection is a key part of Bonduelle’s policy to protect biodiversity and reduce the use of phytosanitary products. The group works with national and international seed producers to identify the varieties with the highest resistance to disease, water stress and climatic variations using traditional cross-cultivation methods. Bonduelle also takes part in testing new varieties to measure their suitability and behavior in different geographies. As a result of varietal selection, the right seed choices mean that biodiversity can be preserved without much use of plant care products, whilst still developing new varieties.
The information technology used by farms enables them to better manage cultivation practices. Using the AgPOD (Agricultural Portal for Online Data, updated in 2014-2015), the BAM business unit was able to benefit from an online program specifically developed to circulate agronomic data recorded on the land. Another example: in Portugal, the agricultural area which supplies the Santarém plant is one of the two pilot sites for the implementation of Gaïa, a tool used to identify the plots of land used for cultivation by partner farmers. Specifically, Gaïa is based on the use of smartphones and tablets, which field supervisors use to save their observations and send their treatment recommendations. After Portugal and South-West France, Gaïa will be rolled out in other European countries by 2017. Russian farms operated by Bonduelle also use IT tools. The Cropio decision-making tool aims to optimize fertilization and irrigation, and thus reduce the amount of fertilizer and water used. Cropio, combining weather information and satellite data, also makes it possible to monitor crops and yield forecasts. In a similar approach, tractors were fitted with GPS, bringing many advantages: night treatment for greater efficiency at smaller doses, increased precision of work, avoiding the same areas being treated twice with fertilizer or phytosanitary products, reduction of wear and tear of tools and fuel consumption.

2.3.6 Toward ecologically intensive agriculture

For Bonduelle, agriculture is a vital link in the prepared vegetables value chain. This is why the group has committed, through its VegeGo! program, to promoting sustainable farming with the goal of protecting the environment while maintaining high levels of crop productivity and profitability.

The Ecologically Intensive Agriculture initiative, which forms part of the VegeGo! project is a complete process comprising three stages:
1. defining the scope of the project by carrying out an in-depth review of agronomy possibilities and customer expectations;
2. establishing clear goals that reconcile customer expectations and agronomy possibilities;
3. drawing up action plans designed to achieve these goals.

The first stage, which is essential for the success of the project, is already underway. It calls for the scope of possibilities to be clearly defined, taking into account the diverse geographical, technological and behavioral factors. This project is consistent with the group’s CSR initiatives. New sowing techniques, research to optimize the way the land is worked, tests on the use of fungi or bacteria to stimulate the root system of plants and protect them from parasites, irrigation pilot schemes using capacitive probes, alternative mechanical or thermal weeding methods. This latter technique is used on the group’s market garden crops in Spain. The principle involves watering the land generously, covering it with a tarpaulin and waiting at least 30 days. Once the temperature reaches over 40°, weeds die naturally. This practice, called solarization, has been tested in France.

Bonduelle and its partners are increasing the number of pilot projects to promote farming which favors natural regulation methods and mechanisms close to those found in nature. The group runs a network of pilot farms in Germany, Canada, Spain, Russia and France, notably in Nord-Picardie. In this region an experiment was begun six years ago on the growing of vegetables in open fields. An initiative coordinated by Agro Transfert and the Chamber of Agriculture of the Somme, Bonduelle and two of its partner producer organizations took part in this project, the results of which were presented in June 2015. In 2013, the eight pilot farms were able to reduce their phytosanitary product treatment frequency indicator (TFI) by 17% compared with 2007. This significant decrease is due to alternating mechanical and chemical weeding techniques, combined with strategic land management. The pilot farm system continues to be rolled out. In this same area, Bonduelle promotes the initiatives of some forty partner farmers committed to ecologically intensive farming. This group, which exchanges best practice, meets Bonduelle representatives once a year to assess the year’s actions and best practices. In 2014-2015, the group launched work to summarize the Ecologically Intensive Agriculture (EIA) methods used by these farmers. The aim is to share their experiences and increase field supervisors’ awareness of this approach so that they can promote it to other producers.
### A. AGRONOMY

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<tr>
<td>Biodiversity</td>
<td>1,355 varieties observed</td>
<td>3,835 varieties observed in the varietal collections</td>
</tr>
<tr>
<td>Agricultural headcount</td>
<td>246 people</td>
<td>252 people (full-time equivalent Agronomy Department employees, including administrative staff, seasonal staff, trainees and those on permanent and fixed-term contracts).</td>
</tr>
<tr>
<td>Sourcing charter</td>
<td>93%</td>
<td>99% of farmers have signed it (either directly or included in contracts).</td>
</tr>
<tr>
<td>Farmer assessed</td>
<td>74%</td>
<td>87% of farmers have been assessed by an initiative with the aim of compiling an annual budget.</td>
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<tr>
<td>Soil analysis</td>
<td>94%</td>
<td>92% of nitrogen fertilizing has been calculated using residual method analysis.</td>
</tr>
<tr>
<td>Farming intensity</td>
<td>27.3 hectares</td>
<td>29.6 hectares of vegetables grown by each producer on average.</td>
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