

# THE CRACKER

November 2015  
Edition 66, No.3

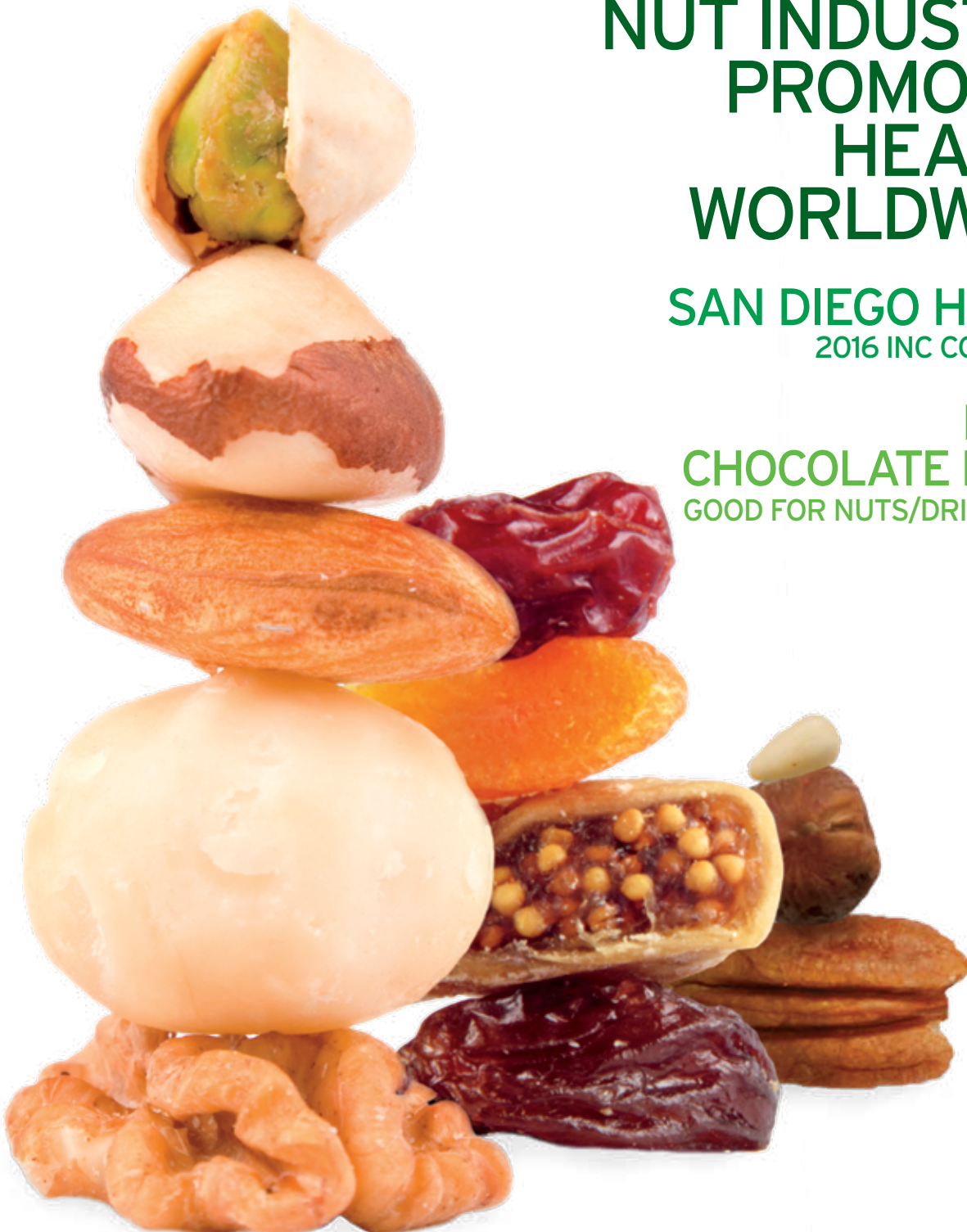


The Official Voice of the International Nut and Dried Fruit Council Foundation for the World Nut and Dried Fruit Trade

## NUT INDUSTRY PROMOTES HEALTH WORLDWIDE

SAN DIEGO HOSTS  
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Prof. Jordi Salas-Salvadó, Chairman of the INC World Forum for Nutrition Research and Dissemination



## ALLERGIES TO NUTS: A PUBLIC HEALTH PROBLEM

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Allergic diseases are a group of complex and potentially serious disorders. Food allergy is a major health concern worldwide. The prevalence of food allergies varies in different regions worldwide, and in general the problem is increasing. Therefore, it is important to address this issue.

Approximately 12 million of American people (4% of the U.S. population) have food allergies, in which children comprises from 5 to 8% of total cases. Main food allergy reactions in the US are due to a limited set of allergens, with 90% due to 8 major food or food groups (milk, eggs, wheat, soy, fish, shellfish, peanuts, and tree nuts)<sup>(1)</sup>. Allergies to peanuts and tree nuts are common and have become an important health problem in both children and adults.

Tree nuts allergic reactions are those produced by an immunological response, generally mediated by specific hypersensitivity to immunoglobulin E (IgE) secreted after tree nuts consumption. The most common IgE mediated food allergy reactions occurs with almonds, cashew nuts, Brazil nuts, hazelnuts, pecans, macadamias, pistachios and walnuts. Peanut or tree nuts are responsible for the vast majority of fatalities due to food-induced anaphylaxis<sup>(2,3)</sup>. These tree nuts are the most common foods reported to cause IgE-mediated food allergic reactions and are usually lifelong<sup>(4)</sup>. Subjects allergic to tree nuts often have awareness of other vegetable origin substances. There are some reported allergy associations between combinations of different tree nuts. In fact, some studies suggest a cross-reactivity between walnuts, hazelnuts and almonds; furthermore, among hazelnuts and sesame seeds and cashews and pistachios<sup>(5)</sup>.

Allergy produces a large variation in symptoms depending mainly on individual age, previous sensitization and allergen exposure and/or the presence of other type of allergies. The first symptoms are usually runny nose, rash all over the body, tongue tingling, breathing

difficulties, body parts swelling, drop blood pressure, hives, vomiting, cramps, diarrhea and finally the anaphylactic shock<sup>(6)</sup>.

The reasons of this increase in allergic reactions in developed countries are largely unknown. Different genetic and environmental factors have been implicated<sup>(5)</sup>. One of the possible explanations is the lack of allergens exposure. For example, it has been recently shown that among mothers without peanut or tree nut allergy, higher peripregnancy consumption of peanut and tree nuts was associated with lower risk of allergy to these foods in their offspring<sup>(7)</sup>, suggesting that early allergen exposure increases tolerance and lowers risk of childhood food allergy.

Recently, an interesting systematic review has been published in Current Allergy and Asthma Reports assessing the prevalence of tree nut allergy in different regions of the world and age groups, adding new knowledge to the scientific literature<sup>(3)</sup>.

In these review, the authors discussed the complexity in determine the real prevalence of tree nut allergies in a specific population. There is not a unique standardized methodology to diagnose tree nuts allergies, and right now, there is not a gold standard method to diagnose tree nuts allergy. At population level, there are self-reported methods, such as surveys and questionnaires, but these methods tend to overestimate the true prevalence of food allergy. IgE testing methods such as skin prick testing (SPT) or specific IgE (sIgE) or other cumbersome methods like oral food challenge (OFC) and double-blind placebo-controlled food challenges (DBPCFC) have also been employed to diagnose and estimate the real prevalence of food allergy<sup>(4,8,9)</sup>.

As stated in this systematic review, most of the studies evaluating the prevalence of tree nut allergy are conducted in Europe and United

States using self-reported data, and the prevalence was reported especially for children and/or adolescents.

Seven studies reported and overall prevalence ranging from 0 to 1.6% using the most objective assessment of OFC or convincing recent history of allergic reaction together with positive specific IgE allergen. Nine studies reported a tree nut allergy prevalence ranging from 0.05 to 4.9% with self-reported food allergy and taking to account additional specific details regarding physician diagnosis or sensitization details (sIgE and SPT) <sup>(3)</sup>. Additionally, three studies identified tree nut allergy prevalence employing sIgE and SPT. The first study reported a hazelnut sensitization by SPT of 0.8% and 6.3% in Russian and Finnish children respectively. The second one was based on the same method and they reported a prevalence of 1% in UK children. Last study found a hazelnut and walnut sensitization prevalence in adults of 9.26% and 2.98% respectively <sup>(3)</sup>. In USA, three studies using a large sample of individuals reported that the

prevalence of self-reported tree nut allergy in children younger than 18 years had increased significantly: In fact, it was 0.2% in 1997, 0.5% in 2002 and it rises to 1.1% in 2008 <sup>(10)</sup>.

In this systematic review the authors reported a higher prevalence of self-reported tree nut allergy (between 0 to 11.4%) compared to other previously published reviews <sup>(11, 12)</sup>, demonstrating that tree nut allergy is an important public health problem that needs to be urgently addressed <sup>(3)</sup>.

One of the main research priorities for the future is to establish gold standard methods in order to standardize a better diagnosis process. This may help to understand better the rise in IgE mediated tree nuts allergy worldwide. In addition, new food bioengineering and biotechnology methods are warranted to reduce the allergenicity of tree nuts.



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